Micronet
Faster and Easier Networks

User's Manual

IP KVM Switch

Model No.: SP1200A

http://www.micronet.info

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Chapter 1 Introduction

Micronet SP1200A, IP KVM Switch, delivers highly reliable solution to increase operational efficiency and mobility for the enterprise. SP1200A allows Server PC to become accessible over the Internet via web browser. SP1200A can work in conjunction with SP218D/SP226D to allow multiple servers' images to be transmitted over the Internet. By taking advantage of SP218D/SP226D existing cascading feature, the personnel will gain access to hundred of servers over the Internet. Security over the Internet is guarded using CSR (Certificate Signing Request) for authentication and HTTPS protocol for encrypting transmitted data.

1.1 Package Contents

Prior to the installation of the device, please verify the following items are in the package:

- IP KVM Switch
- Quick Installation Guide/ Manual CD
- Power Adapter/ Power Cord
- Null Modem Cable/ USB Cable/ 3-to-3 KVM Cable
- Rack Mount Kit

Note: *Contact your dealer immediately if any of the above items are missing, damaged, or if the unit does not work.*

1.2 Key Features

- Support KVM over IP for remote management and access.
- Work in conjunction with SP218D/SP226D KVM switch to cascade and control 120/128 PCs.
- Secure data transmission via HTTPS encrypted connection.
- Support user authentication via CSR for digital identity certificate.
- Support Web-based access via browser application for ease-of-use.
- Automatically senses video resolution for best possible screen capture.

- High-performance mouse tracking and synchronization.
- Automatic adjustment of data rate to transmission line.
- Remote mass storage control and redirection.

1.3 System Requirements

- Java Runtime Environment: version 1.4.2 or above.
- Browser: Microsoft Internet Explorer version 6.0 or above or Netscape or Mozilla or Safari.
- PS/2 interface on KVM/PC for mouse and keyboard connection.

1.4 Specifications

Interface	• Console: ➢ 1 x PS/2 Keyboard Mini Din 6 Pin ➢ 1 x PS/2 Mouse Mini Din 6 Pin ➢ 1 x VGA HDDB 15 Pin • PC/KVM Port: ➢ 1 x Keyboard PS/2 Mini Din 6 Pin ➢ 1 x Mouse PS/2 Mini Din 6 Pin ➢ 1 x VGA HDDB 15 Pin • USB: 1 x USB 2.0 Type B receptacle • LAN Port: 1 x 10/100M RJ-45 • Serial: 1 x Serial DB9 Pin
Video Resolution	• Local: 1600 x 1200 • Remote: 1280 x 1024
Advanced Feature	• DDNS • Mouse Auto-Synchronization • Single/Double Mouse Mode • Virtual Media Access • User Management
Security	HTTPS, CSR
Event Log	NFS, SMTP, SNMP trap
Management	Web UI, Utility, Telnet
Browser	IE 6.0, Netscape 7.0, Mozilla 1.6 (or above)
Power	5V, 2.6A

Chapter 2 Tour of Product

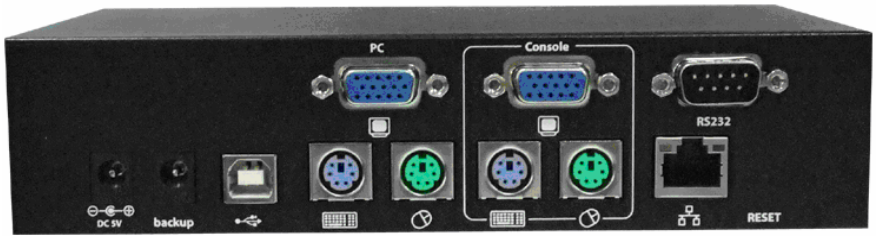
2.1 Front View

Front View

2.1.1 LED Indication

LED	Status	Operation
Power	Red	Device is powered on.
RS-232	Blue	Data traffic on RS-232 link.
LAN 10/100Mbps	On	Indicate LAN port is active and the data speed.
Link	Blinking	Indicate data activity.

2.2 Rear View

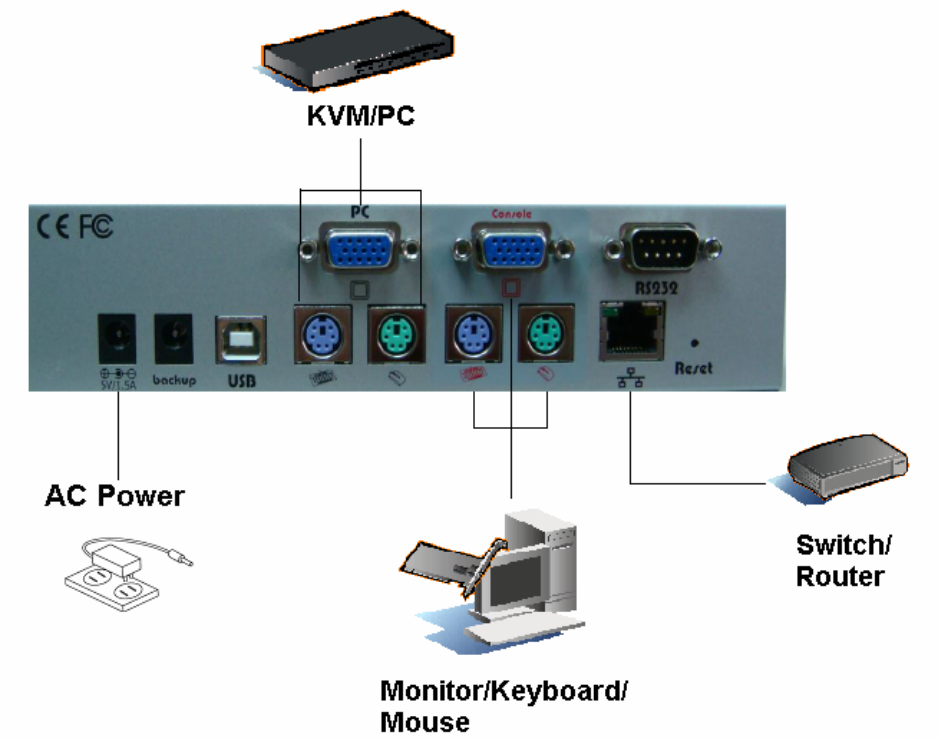


Rear View

1. **Power Jack/ Backup:** Interface for power source and a backup power port.
2. **USB:** For attaching to host PC, while using remote mass storage control.
3. **Local Console:** Interface for connecting to mouse, keyboard and monitor.

4. **PC:** Interface for connecting 3-to-3 KVM cable from SP1200A to PC or KVM switch (SP218D/SP226D).
5. **Local Console:** Interface for connecting to mouse, keyboard and monitor.
6. **RS232:** Connect to external modem via RS232 for serial console access.
7. **LAN:** Port for connecting to existing network or router for remote access over Internet.

2.3 Hardware Installation



Step 1. Connect the Monitor/Keyboard/Mouse to the local console section on the rear of the device.

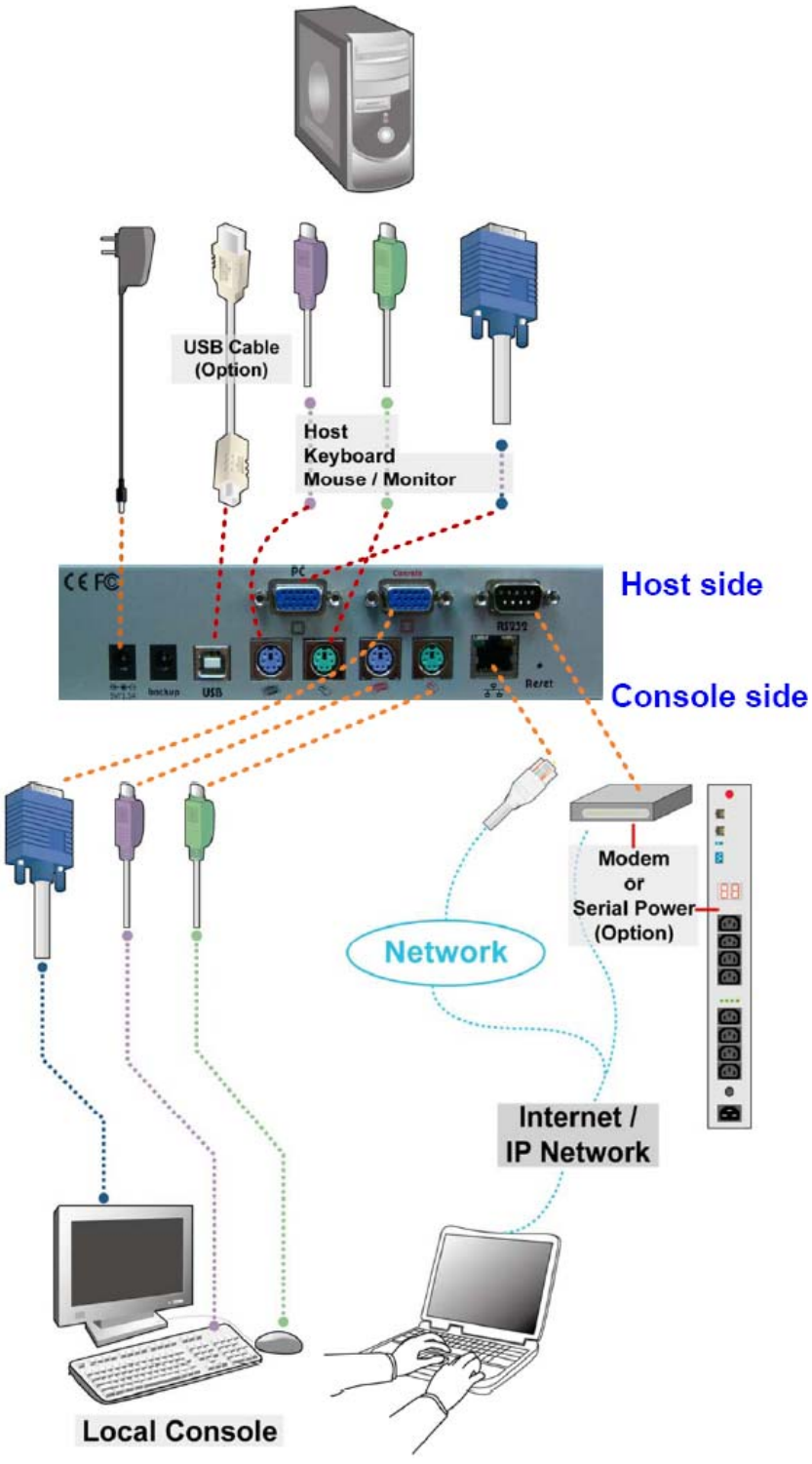
Step 2. Use the 3-to-3 KVM cable provided to connect SP1200A's PC section to a KVM switch or PC.

Step 3. Connect SP1200A to a network (switch/router) via the LAN port provided using R-45 cable.

Step 4. Attach the power adapter to the power jack of the device to activate.

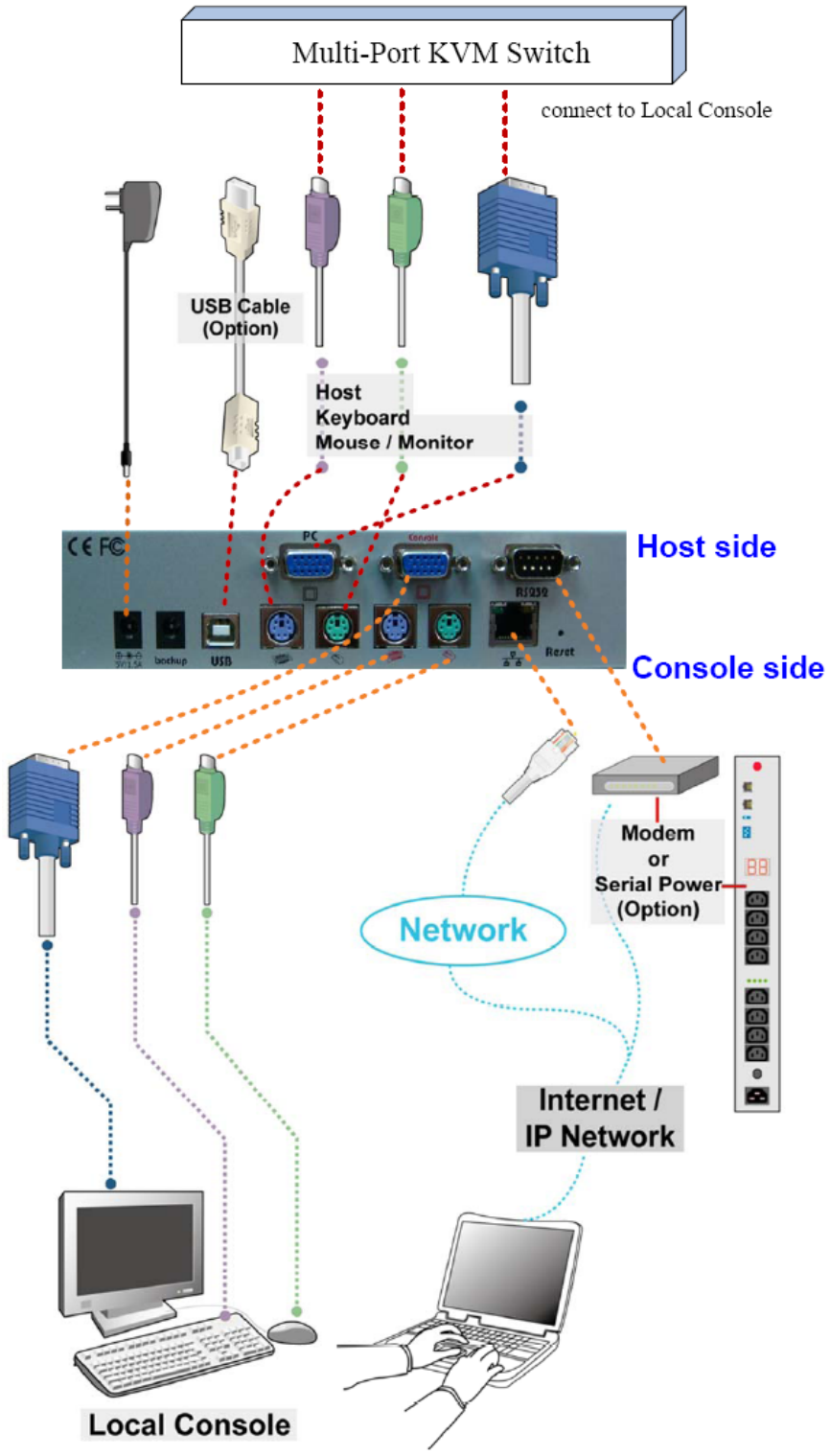
2.4 Cable Connections (PC)

This scenario is for direct connection to a single PC/Server by using the included 3-to-3 KVM cable. RS-232 is an alternative interface for connecting to serial modem for access.



2.5 Cable Connections (KVM Switch)

SP1200A can be connected to a multi-port KVM switch to increase the quantity of controllable servers. By connecting the 3-to-3 KVM cable to the local console interface of the KVM switch, it will transform the SP1200A's single port access to multi-port access.



Chapter 3 Configuration

3.1 PSetup Utility

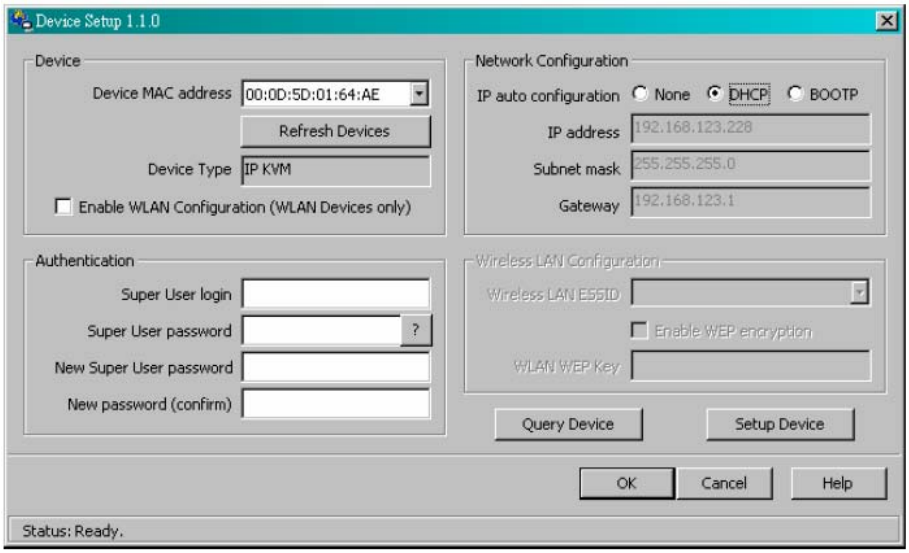
There is a Network Setup Software tool (PSetup) for setting up the network configuration (IP address, Subnet mask, DHCP, etc). It is useful when you want to change the network settings or you can not access to the unit due to not knowing the network settings of the unit. In this case, you can view or change the settings via this utility. The setup tool PSetup can be found on the CD ROM delivered with this package. If you have installed the SP1200A on a network that enables DHCP, you can use the PSetup to find out the IP KVM's IP. Users can follow the procedures described below.

Step 1. Plug Ethernet cable to SP1200A. The IP KVM will get an IP via DHCP.

Step 2. Initiate the 'psetup.exe' on product CD. Click **<Refresh Devices>** button to detect connected devices

Step 3. Select MAC address of the SP1200A in "Device MAC address" box. Users can find the MAC address labeled on the bottom side of I-BOX. MAC address is detected as connection from computer and SP1200A is valid through USB or network.

Step 4. Click **<Query Device>** to find the IP configuration on the right pane.



Parameter	Description
None	Select this option to setup a fixed IP address for the IP KVM switch. After selecting 'None', enter the desired IP address, Subnet Mask and Gateway.
BOOTP	A static configuration protocol uses a table that maps IP addresses to physical addresses.
DHCP	An extension to BOOTP that dynamically assigns configuration information. DHCP is backward compatible with BOOTP.
Super User Login	Enter the login name of the super user. The initial value is "super". All characters are in lower case.
Super user password	Enter the current password for the super user. This initial value is "pass". All characters are in lower case.
New super user password	Enter the new password for the super user.
New password (confirm)	Re-type the new password for the super user for confirmation.

*Click on **<Setup Device>** button to apply the new settings on IP KVM Switch.*

3.2 Configuration Setup via Serial Console

For using serial terminal, the SP1200A has a serial line interface (host side). This connector is compliant with the RS-232 serial line standard. The serial line has to be configured with the parameters given in Table below.

Parameter	Value
Bits/second	115200
Data bits	8
Parity	No
Stop bits	1

Flow Control	None

When configuring with a serial terminal (Eg. HyperTerminal) reset the SP1200A and immediately press the “ESC” key. Users will see some device information, and a “=>” prompt. Enter “config”, press “Enter” key and wait for a few seconds for the configuration questions to appear. As you proceed, the following questions for setting the parameters will appear on the screen. To accept the default values, press **<Enter>** key.

Parameter	Description
IP auto-configuration	With this option, users can specify whether the SP1200A should get its network settings from a DHCP or BOOTP server. For DHCP, enter “dhcp”, and for BOOTP enter “bootp”. If user does not specify any of these, the IP auto-configuration is disabled and subsequently you will be asked for the desired network settings.
IP address	The IP address of the SP1200A. This option is only available if IP auto-configuration is disabled.
Net mask	The net mask of the connected IP subnet. This option is only available if IP auto-configuration is disabled.
Gateway address	The IP address of the default router for the connected IP subnet. If you do not have a default router, enter 0.0.0.0. This option is only available if IP auto-configuration is disabled.

3.3 Keyboard, Mouse, and Video Configuration

Between the SP1200A and the host, there are two interfaces available for transmitting keyboard and mouse data: USB and PS/2. The correct operation of the remote mouse depends on several settings which will be discussed in the following subsections.

3.3.1 SP1200A Keyboard Settings

The SP1200A settings for the host's keyboard type have to be corrected in order to make the remote keyboard work properly. Check the settings in the SP1200A Web front-end. Check the relevant sections in the user manual for further details. Below parameters can be set via web-based UI of SP1200A.

3.3.2 Remote Mouse Settings

A common seen problem with KVM devices is the synchronization between the local and remote mouse cursors. The SP1200A addresses this situation with an intelligent synchronization algorithm. There are two mouse modes available on the IP KVM:

Parameter	Description
Auto mouse speed	The automatic mouse speed mode tries to detect the speed and acceleration settings of the host system automatically. See the section below for a more detailed explanation.
Fixed mouse speed	This mode just translates the mouse movements from the Remote Console in a way that one pixel move will result in n-pixel moves on the remote system. This parameter n is adjustable with the scaling. Please note that this works only when mouse acceleration is turned off on the remote system.

Automatic mouse speed and mouse synchronization

The automatic mouse speed mode performs the speed detection during mouse synchronization. Whenever the local and remote mouse cursors move asynchronously, there are two ways for re-synchronizing local and remote mouse cursors:

Parameter	Description
Fast Sync	The fast synchronization is used to correct a temporary, but fixed skew. Choose the option using the Remote Console options menu or press the mouse synchronization hotkey sequence in case you defined one.
Intelligent Sync	If the fast sync does not work or the mouse settings have been changed on the host system, use the intelligent resynchronization. This method takes more time than the fast one and can be accessed with the appropriate item in the Remote Console option menu. The intelligent synchronization requires a correctly adjusted picture. Use the auto adjustment function to setup the picture, and make sure that there are no window at the top left corner of the remote desktop that are able to change the mouse cursor shape from the normal state. The Sync mouse button on top of the Remote Console can behave differently, depending on the current state of mouse synchronization. Usually pressing this button leads to a fast sync, except in situations where the KVM port or the video mode changed recently.

3.3.3 Host System Mouse Settings

The host's operating system knows various settings from the mouse driver. While the IP KVM works with accelerated mice and is able to synchronize the local with the remote mouse pointer, there are the following limitations, which may prevent this synchronization from working properly:

- **Special Mouse Driver:** There are mouse drivers that influence the synchronization process and lead to desynchronized mouse pointers. If this happens, make sure you do not use a special vendor-specific mouse driver on your host system.
- **Windows XP Mouse Settings:** Windows XP knows a setting named “improve mouse acceleration”, which has to be deactivated.
- **Active Desktop:** If the Active Desktop feature of Microsoft Windows is enabled do not use a plain background. Instead, use some kind of wallpaper. As an alternative, you could also disable the Active Desktop completely. Navigate your mouse pointer into the upper left corner of the applet screen and move it slightly forth and back. Thus the mouse will be resynchronized. If re-synchronizing fails, disable the mouse acceleration and repeat the procedure.

3.3.4 Single and Double Mouse Mode

The information above applies to the Double Mouse Mode, where remote and local mouse pointers are visible and need to be synchronized. The SP1200A also features another mode, the Single Mouse Mode, where only the remote mouse pointer is visible. Activate this mode in the open Remote Console and click into the window area. The local mouse pointer will be hidden and the remote one can be controlled directly. To leave this mode, it is necessary to define a mouse hotkey in the Remote Console Settings Panel. Press this key to free the captured local mouse pointer.

3.3.5 Recommended Mouse Settings

For the different operating systems we can give the following advice:

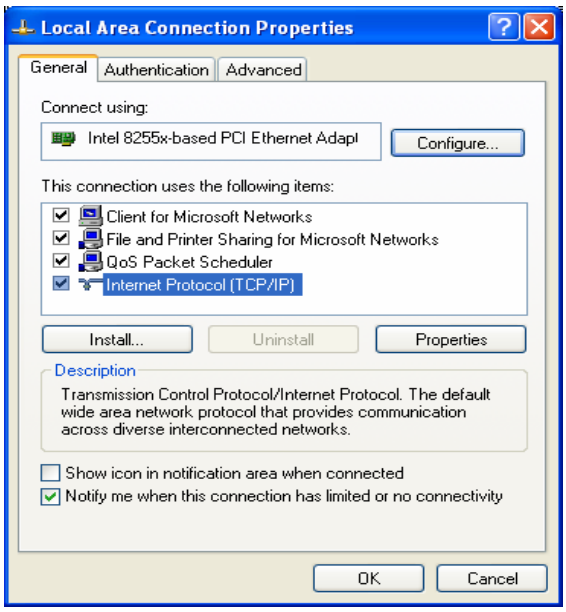
- **MS Windows:** In general, we recommend the usage of a mouse via USB. Choose USB without Mouse Sync. For a PS/2 mouse choose Auto Mouse Speed. For XP disable the option “enhance pointer precision” in the Control Panel.
- **SUN Solaris:** Adjust the mouse settings either via xset m 1 or use the CDE Control Panel to set the mouse to “1:1, no acceleration”. As an alternative you may also use the Single Mouse Mode.
- **MAC OS X:** We recommend using the Single Mouse Mode.

3.3.6 Video Modes

The IP KVM recognizes a limited number of common video modes. When running ‘X11’ on the host system, it is not recommended to use any custom-mode lines with special video modes. Otherwise, the IP KVM may not be able to detect them. We recommend using any of the standard VESA video modes, instead.

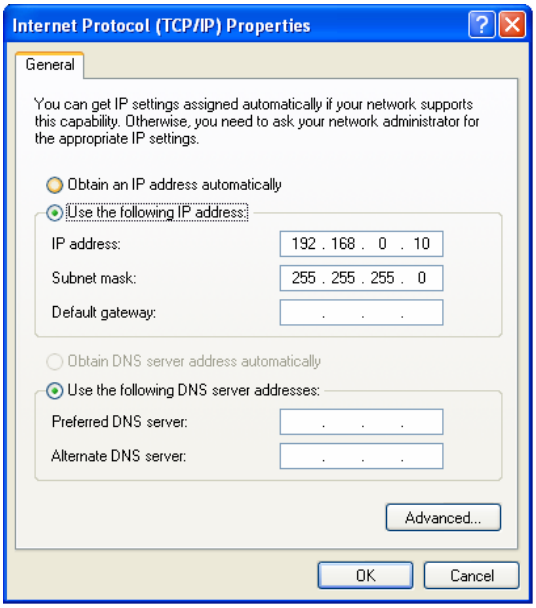
3.4 IP Address Configuring

PC/Notebook must belong in the same IP range and subnet. Follow the steps below to configure IP settings for LAN PC.



Step 1. In the control panel, double click on Network Connections. Double click on the local area connection (e.g. LAN). The following screen will appear. Highlight 'Internet Protocol (TCP/IP)' and click on 'Properties'.

Step 2. Select 'Internet Protocol (TCP/IP)', and then click on the **<Properties>** button. The screen will appear to allow entry of TCP/IP settings.


Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
192 . 168 . 0 . 10
Subnet mask:
255 . 255 . 255 . 0
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

Step 3. In DOS command, type 'ipconfig' to view information on LAN connection. Ensure the IP address and subnet mask are on the same subnet as the IP KVM Switch.

C:\Documents and Settings\home user>ipconfig
Windows IP Configuration
Ethernet adapter Local Area Connection:
Connection-specific DNS Suffix . :
IP Address. . . . . : 192.168.0.10
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . :
C:\Documents and Settings\home user>_

Default IP Address	192.168.0.70
Default Subnet Mask	255.255.255.0
Default Username	‘super’
Default Password	‘pass’

3.5 Accessing Web-based UI

The SP1200A IP KVM Switch provides several standardized interface like web-based configuration and telnet for allowing users to configure from a wired workstation. This chapter will describe both these interfaces, and the way to use them in a more detailed manner. The interfaces are accessed using the TCP/IP protocol family, thus they can be accessed using the LAN port of the device.

3.5.1 HTTP/HTTPS

Full access is provided by the embedded web server. The IP KVM environment can be entirely managed using a standard web browser. Users can access the IP KVM using the insecure HTTP protocol, or using the encrypted HTTPS protocol. Whenever possible, use HTTPS for enhanced security. In order to use the Remote Console window of your managed host system, the browser has to come with a Java Runtime Environment version 1.4.2 or above. If the browser has no Java support (such as on a small handheld device), you are still able to maintain your SP1200A using the administration forms displayed by the browser itself.

For secure connection to the SP1200A, we recommend the following browsers versions:

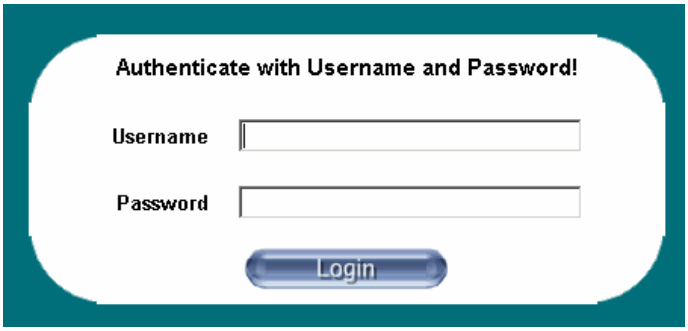
- Microsoft Internet Explorer version 6.0 or higher
- Netscape Navigator 7.0 or Mozilla 1.6 or higher

In order to access the remote host system using a securely encrypted connection, you need a browser that supports the HTTPS protocol. Strong

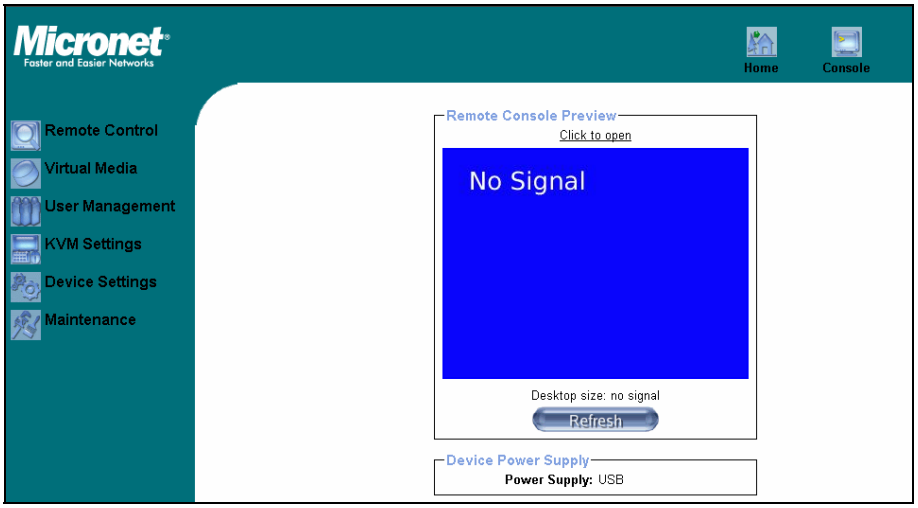
security is only assured by using a key length of 128 Bit. Some of the old browsers do not have a strong 128 Bit encryption algorithm. Using the Internet Explorer, open the menu entry “?” and “Info” to read about the key length that is currently activated. The dialog box contains a link that leads you to information on how to upgrade your browser to a state of the art encryption scheme. Figure below shows the dialog box presented by the Internet Explorer 6.0.

Step 1. Enter SP1200A’s default IP into the web browser to access web-based settings.

Step 2. Login page will appear to prompt users to enter the username and password.

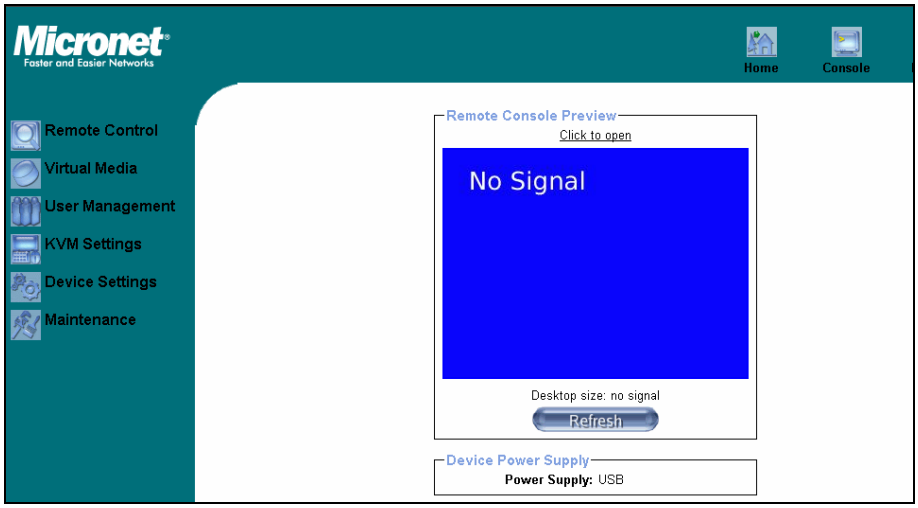


Step 3. Once username and password are correctly entered, below interface will appear to allow users to configure and operate the IP KVM Switch. For further details on each function and selection, please consult the user manual.



Chapter 4 Web-based User Interface

Having logged into the IP KVM successfully, the main page of the IP KVM appears. This page consists of three parts and each of them contains specific information. The buttons on the upper side allow you to navigate within the front end. Within the right frame, task-specific information is displayed that depends on the section you have chosen before.



Return to main page of IP KVM access page

Open the IP KVM remote console

Exit the Web-based UI.

If there is no activity for 30 minutes, the IP KVM will log you out, automatically. A click on one of the links will bring you back to the login screen.

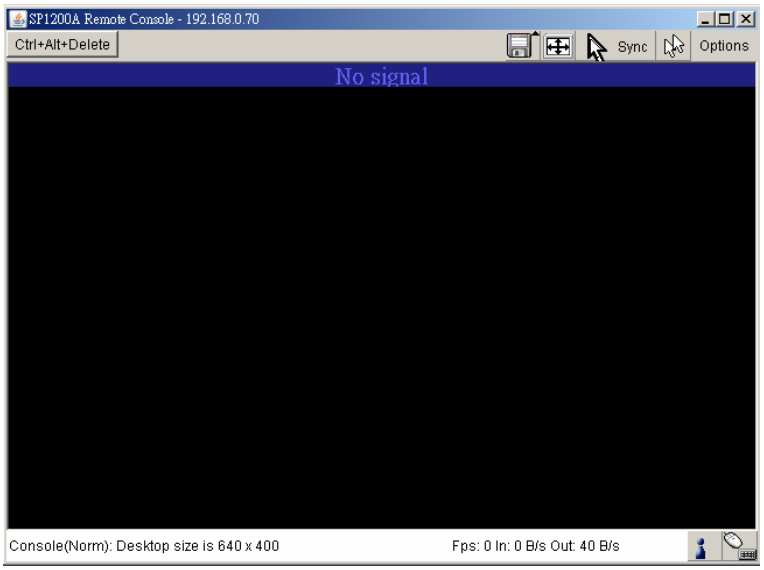
4.1 The Remote Console

The Remote Console window is a Java Applet that tries to establish its own TCP connection to the SP1200A. The protocol that is run over this connection is neither HTTP nor HTTPS, but RFB (Remote Frame Buffer Protocol). As default, RFB tries to establish a connection to TCP port number 443. Your local network environment has to allow this connection to be made, i.e. your firewall and NAT (Network Address Translation) settings have to be configured accordingly.

In case the IP KVM is connected to your local network environment and your connection to the Internet is available using a proxy server only without NAT being configured, the Remote Console is very unlikely to be able to establish the desired connection. This is because today's web proxies are not capable of relaying the RFB protocol. In case of problems, please consult your network administrator in order to provide an appropriate networking environment.

4.1.1 Main Window of Remote Console

To open the KVM console either click on the icon **<Console>** or 'Remote Control > KVM Console' of the menu entry on the left.



Starting the Remote Console opens an additional window. It displays the screen content of your host system. The Remote Console will behave exactly in the same way as if you were sitting locally in front of the screen of your remote system. That means keyboard and mouse can be used in the usual way. However, be aware of the fact that the remote system will react to keyboard and mouse actions with a slight delay. The delay depends on the bandwidth of the link to which you use to connect to the SP1200A.

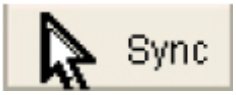
In respect to the keyboard, the very exact remote representation might lead to some confusion as your local keyboard changes its keyboard layout according to the remote host system. If you use a German administration system, and your host system uses a US English keyboard layout, for instance, special keys on the German keyboard will not work as expected. Instead, the keys will result in their US English counterpart. You can avoid such problems by adjusting the keyboard of your remote system to the same mapping as your local one.

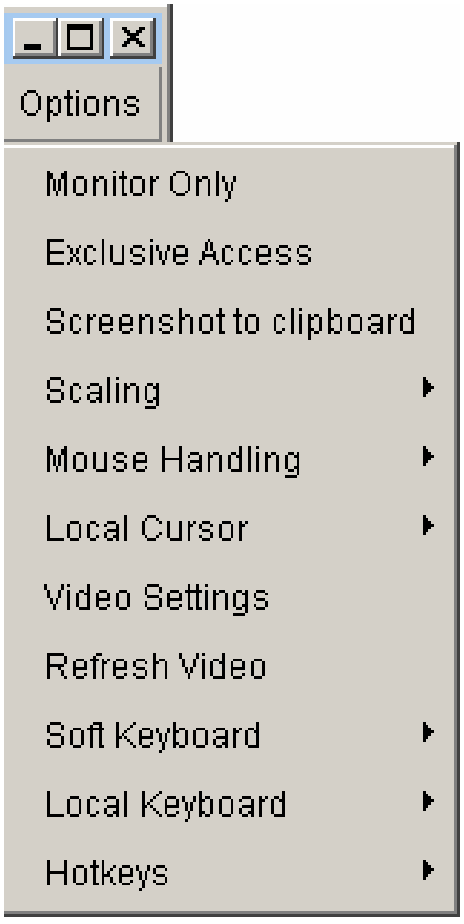
The Remote Console window always tries to show the remote screen with its optimal size. Meaning it will adapt its size to the size of the remote screen initially and after the screen resolution of the remote screen has been changed. However, you can always resize the Remote Console window in your local window system as usual.

4.1.2 Control Bar of Remote Console

The upper part of the Remote Console window contains a control bar. Using its elements you can see the state of the Remote Console and adjust the local Remote Console settings. A description for each control follows.

Icon	Description
Ctrl+Alt+Delete	Special button to send the “Control+Alt+ Delete” key combination to the remote system.

	If the video display is of bad quality or distorted in some way, press this button and wait a few seconds while the SP1200A tries to detect the video mode of VGA port to the controlled host and adjust itself for the best possible video quality.
	Activates the mouse synchronization process. Choose this option in order to synchronize the local with the remote mouse cursor. This is especially necessary when using accelerated mouse settings on the host system. In general, there is no need to change mouse settings on the host.
	Switches between the Single Mouse Mode (where only the remote mouse pointer is visible) and the Double Mouse Mode (where remote and local mouse pointers are visible and need to be synchronized). Single mouse mode is only available if using SUN JVM 1.4.2 or higher.
	To open the Options menu, click on the button “Options”.



Monitor Only

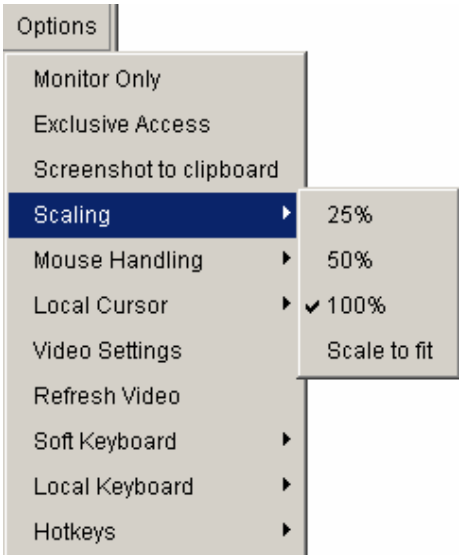
Toggles the Monitor only filter on or off. If the filter is switched on no remote console interaction is possible, and monitoring is possible.

Exclusive Access

If a user has the appropriate permission, he or she can force the Remote Consoles of all other users to close. No one can open the Remote Console at the same time again until this user disables the exclusive access, or logs off.

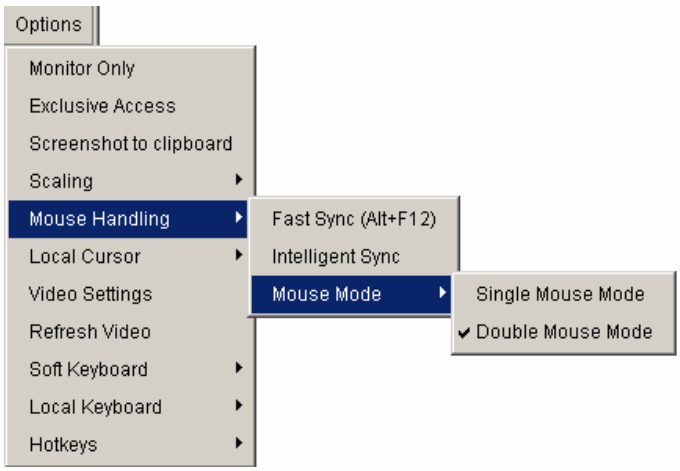
Scaling

Allow you to scale down the Remote Console. You can still use both mouse and keyboard, but the scaling algorithm will not preserve all display details. When you designate 25%, 50%, or100% scaling, the size of Remote Console window is calculated according to the remote host video setting with scaling algorithm execution. When you designate “Scale to fit”, the remote video displaying is scaled to fit the size of Remote Console window.



Mouse Handling

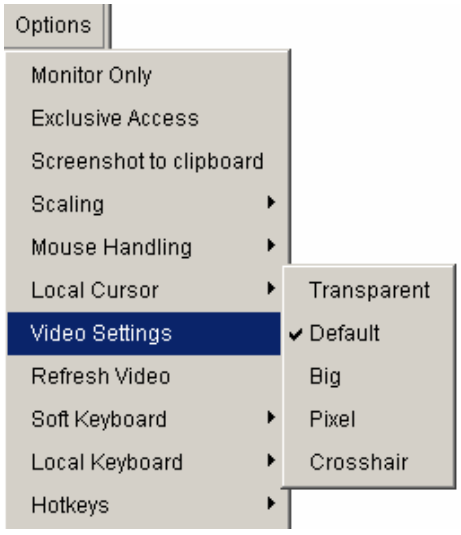
The submenu for mouse handling offers two options for synchronizing the local and the remote mouse cursors.



Parameter	Description
Fast Sync	The fast synchronization is used to correct a temporary, but fixed skew.
Intelligent Sync	Use this option if the fast sync does not work or the mouse settings have been changed on the host system.

Local Cursor

The menu offers a list of different cursor shapes for the local mouse pointer. The selected shape will be saved for the current user and activated the next time this user opens the Remote Console. The number of available shapes depends on the Java Virtual Machine where version 1.4.2 or above offers the full list.



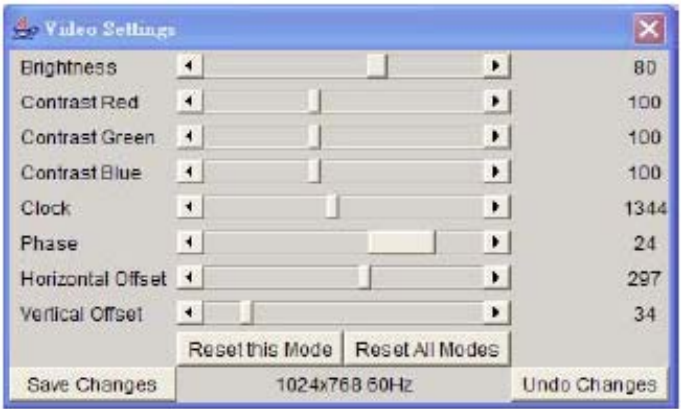
Video Settings

The menu opens a panel for changing the SP1200A video settings. SP1200A features two different dialogs for adjusting the video settings.

Video Settings through the HTML

To enable local video port, select this option. This option decides if the local video output of SP1200A is active and passing through the incoming signal from the host system. The option Noise Filter defines how SP1200A reacts to small changes in the video input signal. Turning on the noise filter can help reduce video flickering that is often caused by distortions, as well as lowering unnecessary bandwidth consumption. A large filter setting needs less network traffic and leads to a faster video display, but small changes in some display regions may not be recognized immediately. A small filter displays all changes instantly but may lead to a constant amount of network traffic even if display content is not really changing (depending on the quality of the video input signal). All in all the default setting should be suitable for most situations.

Video Settings via the Remote Console



Parameter	Description
Brightness	Controls the brightness of the picture.
Contrast	Controls the contrast of the picture.
Clock	Defines the horizontal frequency for a video line and depends on the video mode. Different video card types may require different values here. The default settings in conjunction with the auto adjustment procedure should be adequate for all common configurations. If the picture quality is still bad after auto adjustment you may try to change this setting together with the sampling phase to achieve a better quality.
Phase	Defines the phase for video sampling, used to control the display quality together with the setting for sampling clock.
Horizontal Position	Use the left and right buttons to move the picture in horizontal direction while this option is selected.
Vertical Position	Use the left and right buttons to move the picture in vertical direction while this option is selected.

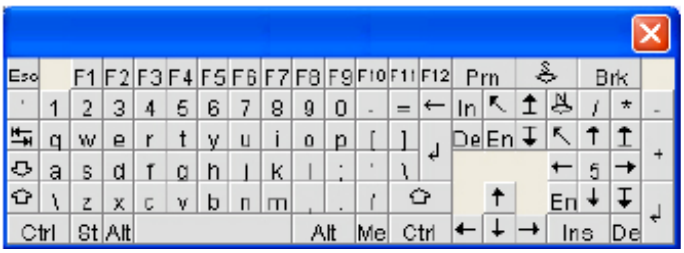
Reset this Mode	Reset mode specific settings (Clock, Phase and Position) to the factory-made defaults.
Reset all Modes	Reset all settings to the factory-made defaults.
Save changes	Save changes permanently
Undo Changes	Restore last settings

Refresh Video

Click to run this menu item for retrieving the whole video again from the controlled host and displayed on Remote Console. In normal situation, it only sent changed parts of video from SP1200A, for saving network bandwidth. This function is mainly used for troubleshooting purpose where some old video fragments are displayed as not updated in time for some reason, for example, noise filter for VGA is setting too large.

Soft Keyboard

The function opens up the Menu for the Soft-Keyboard.



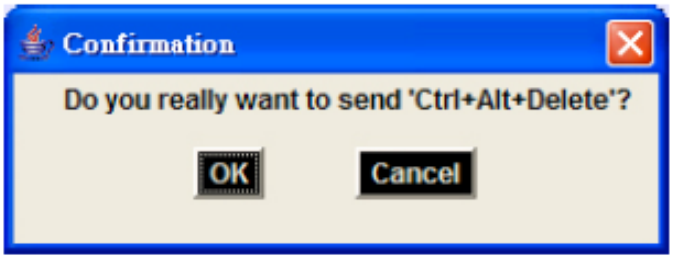
Parameter	Description
Show	Pops up the Soft-Keyboard. The Soft-Keyboard is necessary in case your host system runs a completely different language and country mapping than your administration machine.
Mapping	Used for choosing the specific language and country mapping of the Soft-Keyboard.

Local Keyboard

The function is for changing the language mapping of your browser machine running the Remote Console Applet. Normally, the applet determines the correct value automatically. However, depending on your particular JVM and your browser settings, issues may arise. A typical example is a German localized system that uses an US-English keyboard mapping. In this case you have to change the Local Keyboard setting to the right language, manually.

Hotkeys

Opens a list of hotkeys defined before. Choose one entry, the command will be sent to the host system. A confirmation dialog can be added that will be displayed before sending the selected command to the remote host. Select “OK” to execute the command on the remote host.



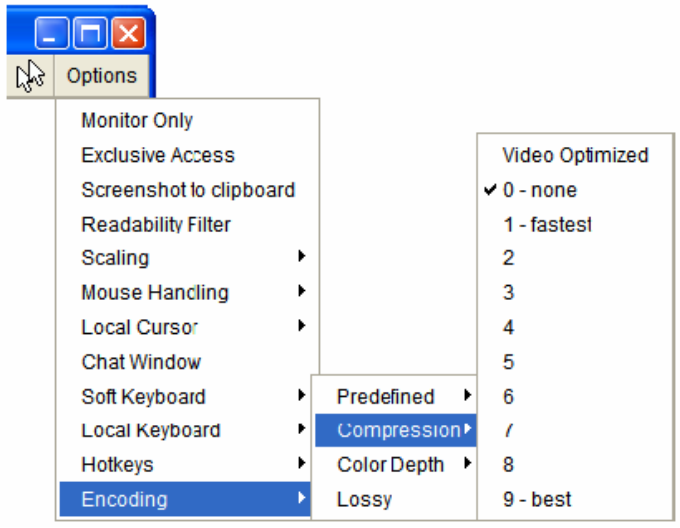
Encoding

These options are used to adjust the encoding level in terms of compression and color depth. They are only available unless "Transmission Encoding" is determined automatically

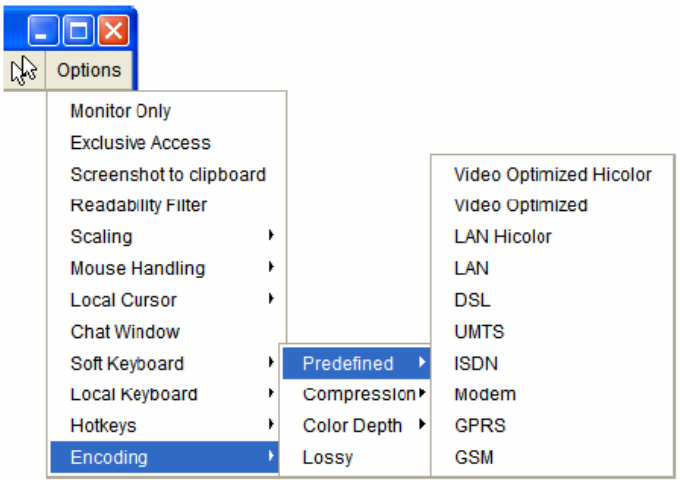
Compression Level

Users may select a value between 1 and 9 for the desired compression level with level 1 enabling the fastest compression and level 9 the best compression. The most suitable compression level should always be seen as a compromise between the network bandwidth that is available, on your video picture to be transferred, and on the number of changes between two single video pictures. We recommend using a higher compression level if the network bandwidth is low. The higher the compression level the more time is needed to pack and unpack the video data on either side of the connection. The compression quality depends on the video picture itself, e.g. the number of the colors or the diversity of pixels. The lower the compression quality, the more data have to be sent and the longer it may take to transfer the whole video picture. If level 0 is chosen the video compression is disabled.

The option "Video Optimized" has its advantages if transferring high-quality motion pictures. In this case the video compression is disabled, completely and all video data is transferred via network as full-quality video snippets. Therefore, a high amount of bandwidth is required to ensure the quality of the video picture.

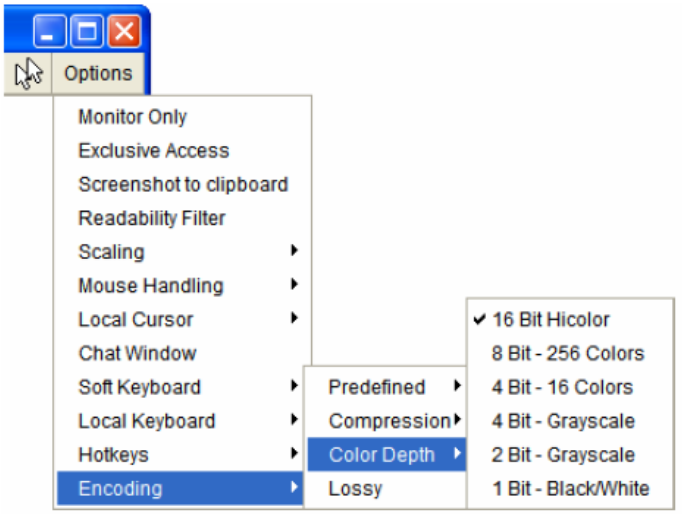


The next two options allow you to set the compression level to a predefined level OR to set a level for "lossy" compression. This compresses is well refined, but leads to a degradation in image quality.



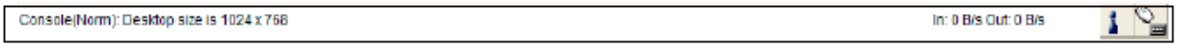
Color Depth

The function is for setting the desired color depth. Users may select between 8 or 16 bit for Video Optimized/compression level 0, or between 1 and 8 bit for compression level 1 to 9. The higher the color depth, the more video information has to be captured and to be transferred.

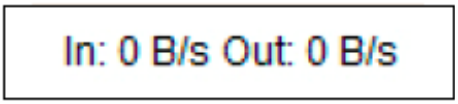


4.1.3 Status Line of Remote Console

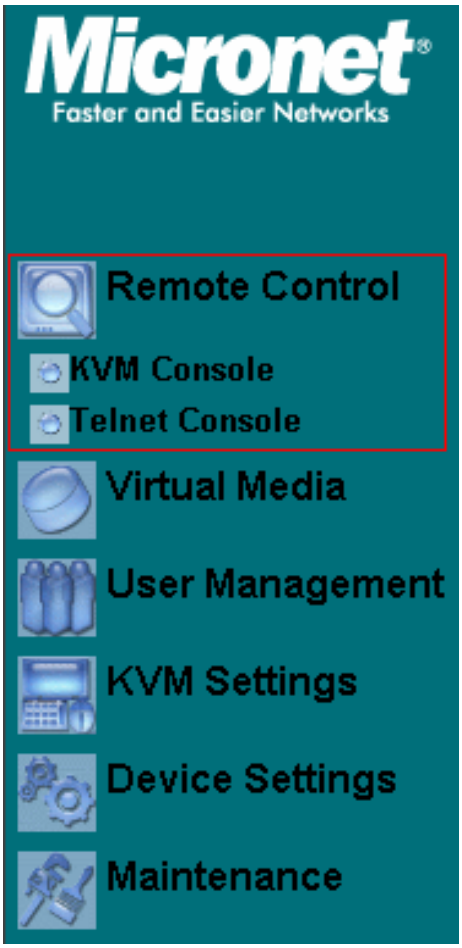
The interface shows both console and the connection state. The size of the remote screen is displayed. Figure below was taken from a Remote Console with a resolution of 800x600 pixels. The value in brackets describes the connection to the Remote Console. “Norm” means a standard connection without encryption and “SSL” means a secure connection.



Furthermore, both the incoming (“In:”) and the outgoing (“Out:”) network traffic are visible (in kb/s). If compressed encoding is enabled, a value in brackets displays the compressed transfer rate.



4.2 Remote Control Menu

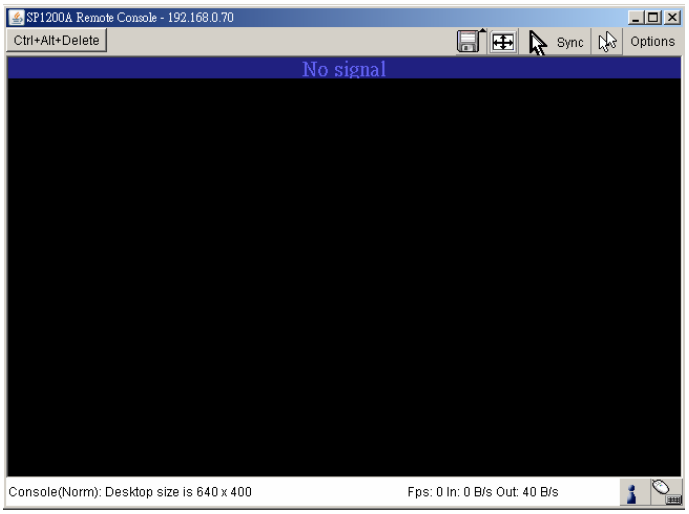


The Remote Console is the redirected screen, keyboard and mouse of the remote host system that SP1200A controls. The Remote Console window is a Java Applet that tries to establish its own TCP connection to the SP1200A. Starting the Remote Console opens a new window displays screen movement of host system, with its size automatically adjusted to optimum. Keyboard and

mouse are redirected to control the host system simultaneously. A slight delay may present depending on the bandwidth of network.

4.2.1 KVM Console

To open the KVM console either click on the icon ‘Console’ or ‘Remote Control > KVM Console’ of the menu entry on the left.



4.2.2 Telnet Console

The SP1200A firmware features a Telnet server that enables a user to connect via a standard Telnet client. In case the Telnet program is using a VT 100, VT

102 or VT 220 terminal or an according emulation, it is even possible to perform a console redirection as long as the SP1200A host machine is using a text mode screen resolution.
Connecting to the SP1200A is done as usual and as required by the Telnet client, for instance in a UNIX shell:

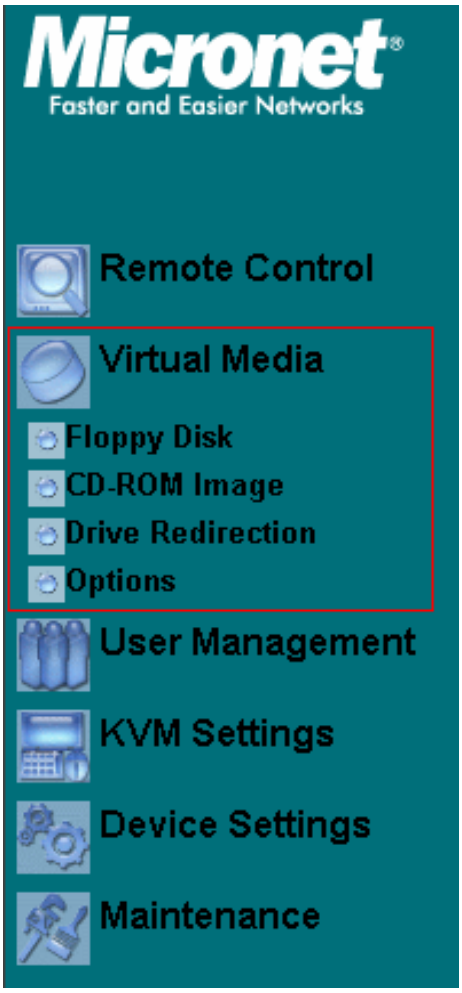
telnet 192.168.0.70

Replace the IP address by the one that is actually assigned to the SP1200A. This will prompt for username and password in order to log into the device. The credentials that need to be entered for authentication are identical to those of the web interface. That means, the user management of the Telnet interface is entirely controlled with the according functions of the web interface.

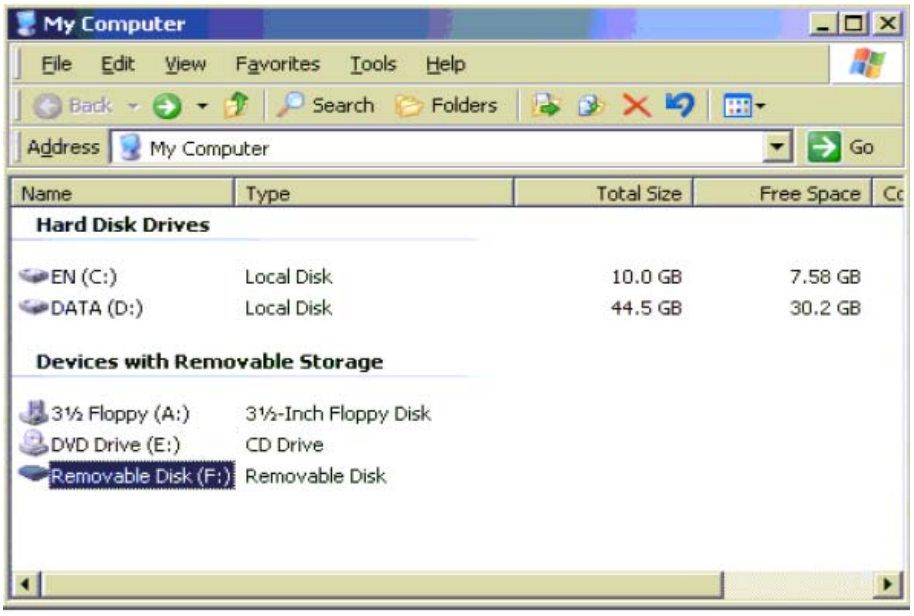
Once you have successfully logged into the SP1200A a command line will be presented and you can enter according management commands. In general, the Telnet interface supports two operation modes: the command line mode and the terminal mode. The command line mode is used to control or display some parameters. In terminal mode the pass-through access to serial port 1 is activated (if the serial settings were configured accordingly). All inputs are redirected to the device on serial port 1 and its answers are displayed on the Telnet interface.

Parameter	Description
help	Displays the list of possible commands.
cls	Clears the screen.
quit	Exits the current session and disconnects from the client.
version	Displays the release information.
terminal	Starts the terminal pass through mode for serial port 1. The key sequence ESC exit switches back to the command mode.

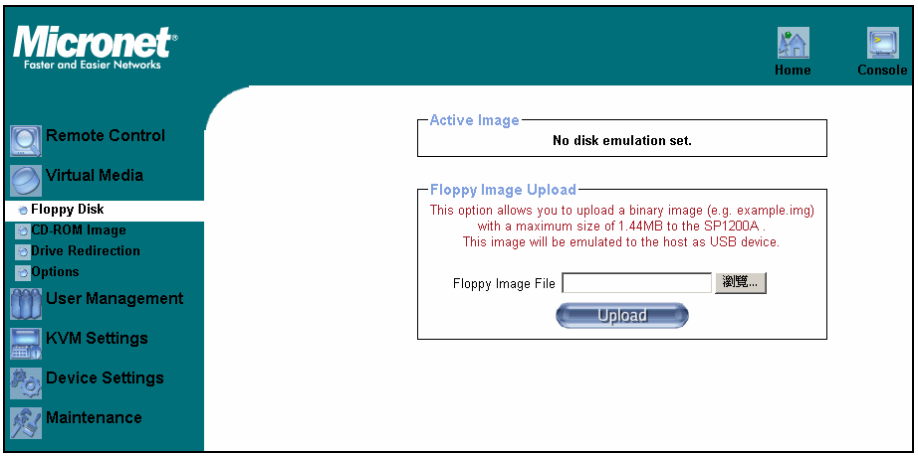
4.3 Virtual Media Menu



Before go ahead with this setup, both remote user computer and local computer (the one connected with SP1200A) would have to have Operating System Win2000, XP or above. This function would not work on other platforms at this moment. Before using Virtual Media, please connect the USB cable from SP1200A to host computer. After connecting the USB cable, you can see a “Removable Disk” on the host computer. Below is the host computer screen (the computer which connected with SP1200A).

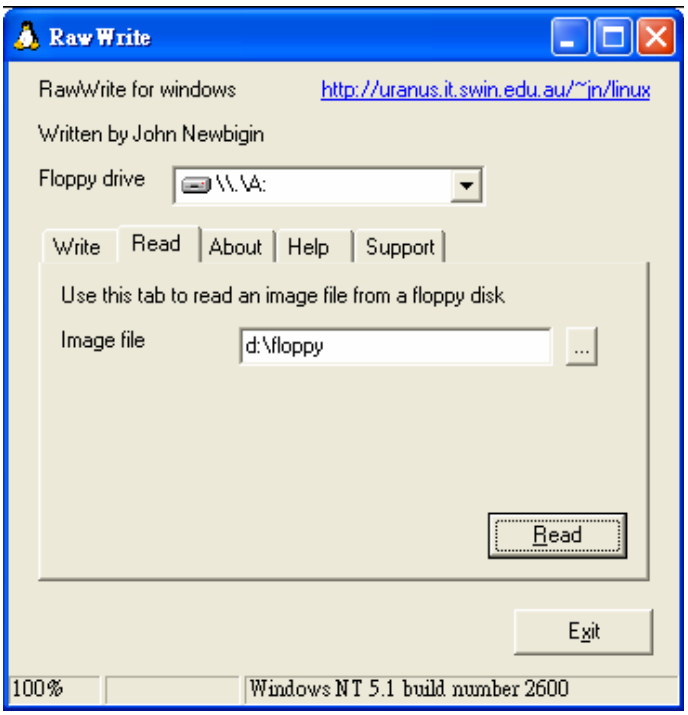

My Computer
File Edit View Favorites Tools Help
Back Search Folders
Address My Computer
Go
Name Type Total Size Free Space
Hard Disk Drives
EN (C:) Local Disk 10.0 GB 7.58 GB
DATA (D:) Local Disk 44.5 GB 30.2 GB
Devices with Removable Storage
3½ Floppy (A:) 3½-Inch Floppy Disk
DVD Drive (E:) CD Drive
Removable Disk (F:) Removable Disk

4.3.1 Floppy Disk



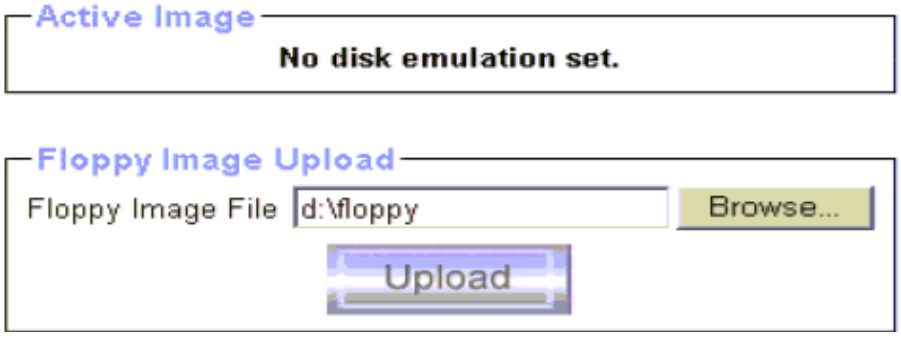
Step 1. User need to create the floppy to an image file first.

Step 2. For this example, we use RawWrite software (or any other image-creator software) to create floppy image. Please use licensed software for this purpose.

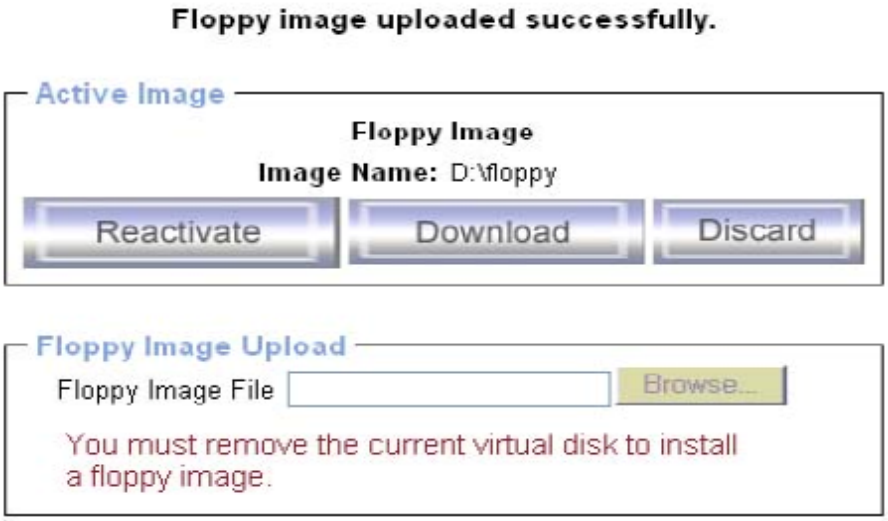


Step 3. Users can find an image file saved at desire destination after you created it with RawWrite.

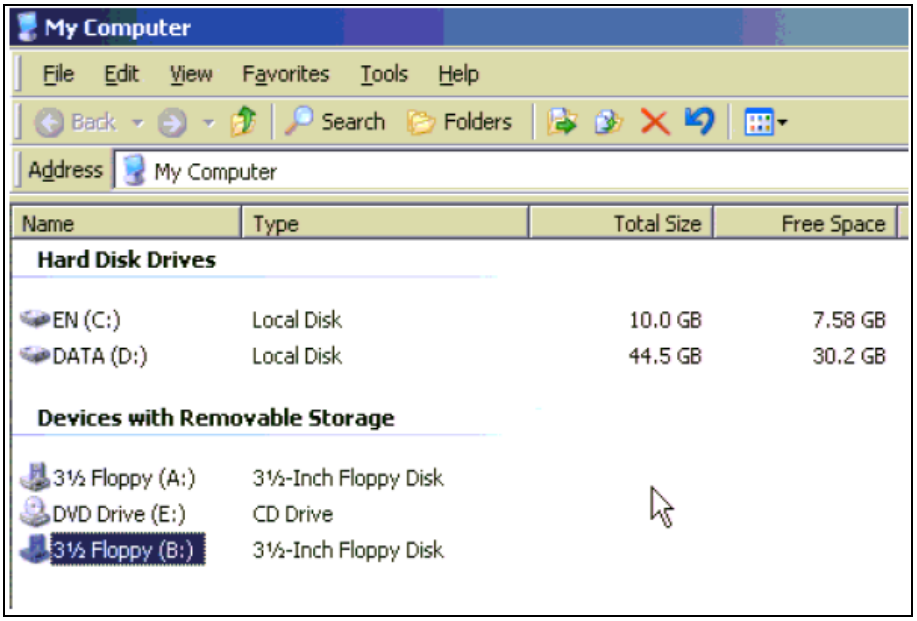
Step 4. Open the browser to log into the SP1200A. Click on 'Virtual Media > Floppy Disk' to access below interface. Click the <Browse> button to choose the image file.



Step 5. After you uploading the image file, you will see the information below.



Step 6. Open the remote console and you will see a virtual Floppy drive is created on the host computer that connects to SP1200A.

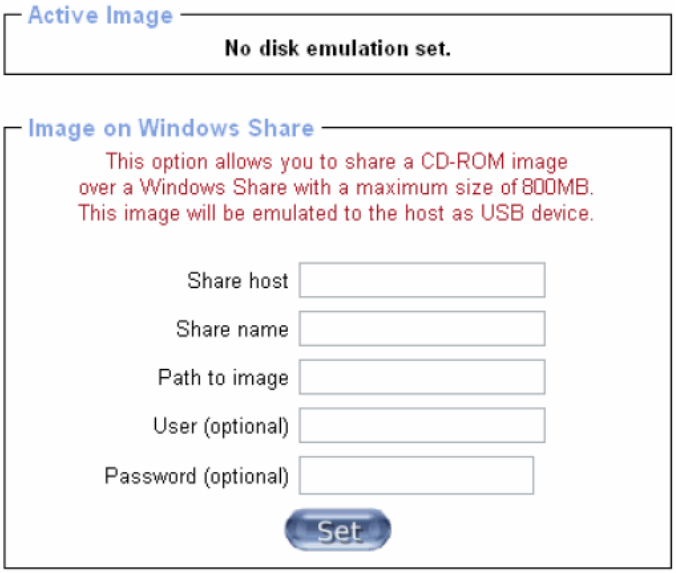

My Computer
File Edit View Favorites Tools Help
Back Search Folders
Address My Computer
Name Type Total Size Free Space
Hard Disk Drives
EN (C:) Local Disk 10.0 GB 7.58 GB
DATA (D:) Local Disk 44.5 GB 30.2 GB
Devices with Removable Storage
3½ Floppy (A:) 3½-Inch Floppy Disk
DVD Drive (E:) CD Drive
3½ Floppy (B:) 3½-Inch Floppy Disk

Users may create a floppy image size up to 1.44Mb. This drive would be in read-only mode and would not allow users to write any information on this drive but copying only. This drive would be bootable under DOS mode if the motherboard/BIOS on the host computer supporting USB BOOTABLE function. If using other image-creator software, the output image extension file name has to be ‘img’, e.g. floppy_vir.img. The uploaded image file will be kept in the onboard memory of the SP1200A until the end of the current session, as you logged out, or initiated a reboot of the SP1200A.

4.3.2 CD–ROM Image

Use Image on Windows Share (SAMBA)

To include an image from a Windows share, select “CD-ROM” from the submenu.


Active Image
No disk emulation set.
Image on Windows Share
This option allows you to share a CD-ROM image
over a Windows Share with a maximum size of 800MB.
This image will be emulated to the host as USB device.
Share host
Share name
Path to image
User (optional)
Password (optional)
Set

Step 1. Please run Nero or any CD imaging tool to create CD-ROM ISO image.

Step 2. Please create a folder and share this folder. (Please make sure password has to be setup with the authorized user during Sharing -> Permission settings)

Step 3. Copy the CD-ROM ISO image file to this sharing folder.

Step 4. Please fill in the sharing information as below picture.

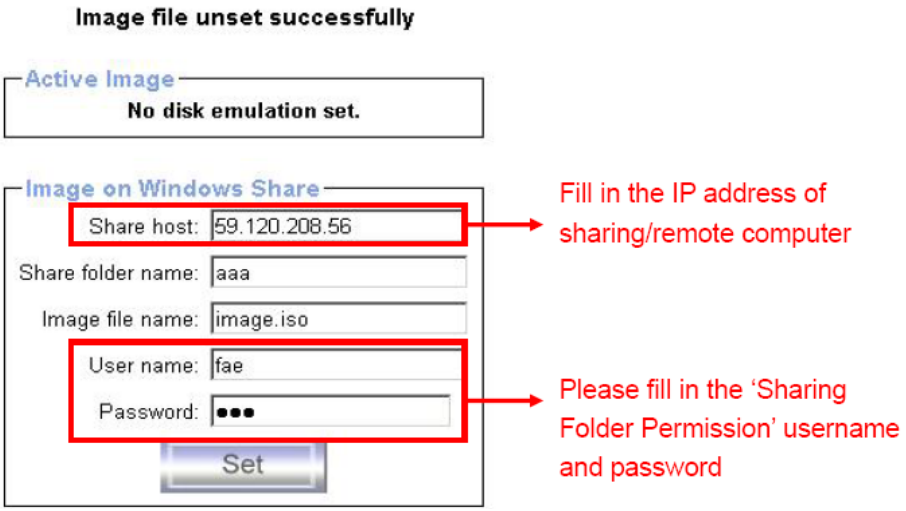
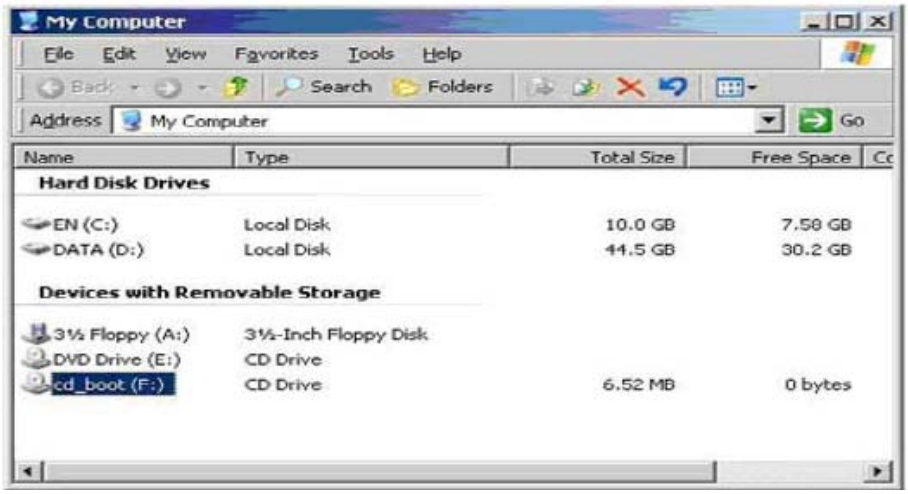


Image file unset successfully
Active Image
No disk emulation set.
Image on Windows Share
Share host: 59.120.208.56
Share folder name: aaa
Image file name: image.iso
User name: fae
Password: ●●●
Set
Fill in the IP address of sharing/remote computer
Please fill in the 'Sharing Folder Permission' username and password

Parameter	Description
Share host	The server name or its IP address.
Share folder name	The name of the share folder to be used.
Image file name	The name of the image files on the share folder.
User name	If necessary, specify the username for the share named in advance. If unspecified, and a guest account is activated, this guest account information will be used as your login.
Password	If necessary, specify the password for the given username.

Step 5. Image file set successfully.

Step 6. Open the remote console and users can see the virtual CD as below picture.


My Computer
File Edit View Favorites Tools Help
Back Search Folders
Address My Computer
Go
Name Type Total Size Free Space
Hard Disk Drives
EN (C:) Local Disk 10.0 GB 7.58 GB
DATA (D:) Local Disk 44.5 GB 30.2 GB
Devices with Removable Storage
3½ Floppy (A:) 3½-Inch Floppy Disk
DVD Drive (E:) CD Drive
cd_boot (F:) CD Drive 6.52 MB 0 bytes

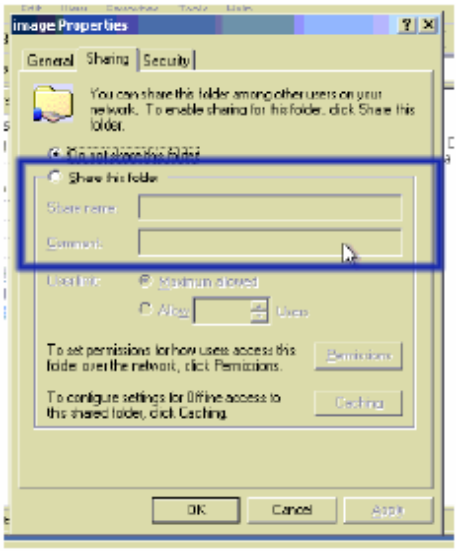
The output image extension file name has to be ‘iso’, e.g. CD-Rom_vir.iso. Users may create an ISO image size up to 650Mb. This drive would be in read-only mode and would not allow you to write any information on this drive but copying only. This drive would be bootable under DOS mode if the motherboard/BIOS on the host computer support USB BOOTABLE function. For emulating DVD Drive, please use Drive Redirection function.

To register the specified file image and its location click on the button **<Set>**. The specified image file is supposed to be accessible from the SP1200A. The information above has to be given from the point of view of the SP1200A. It is important to specify correct IP addresses, and device names. Otherwise, SP1200A may not be able to access the referenced image file. Furthermore, the specified share has to be configured correctly. Therefore, administrative permissions are required. As a regular user you may not have these permissions. You should either login as a system administrator (or as “root” on UNIX systems), or ask your system administrator for help to complete this task.

MS Windows

Open the Explorer, navigate to the directory (or share), and press the right mouse button to access the context menu.

Step 1. Select “Sharing” to open the configuration dialog.



Step 2. Adjust the settings for the selected directory.

Step 3. Activate the selected directory as a share. Select “Sharing this folder”.

Step 4. Choose an appropriate name for the share. You may also add a short description for this folder (input field “Comment”). If necessary, adjust the permissions (button “permissions”).

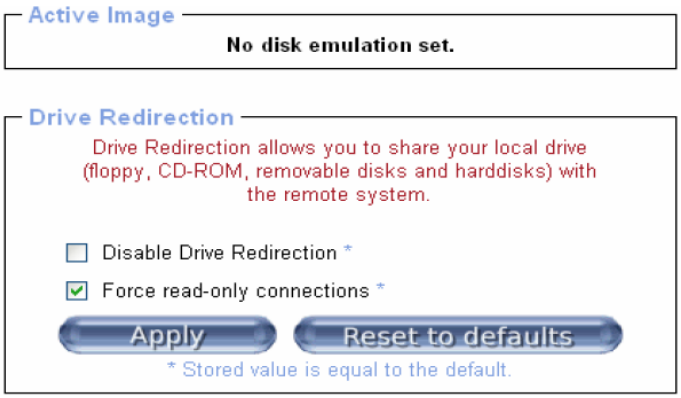
Step 5. Click **<OK>** to set the options for this share.

UNIX and UNIX-like OS (Sun Solaris, and Linux)

If you like to access the share via SAMBA, SAMBA has to be set up properly. You may either edit the SAMBA configuration file /etc/samba/smb.conf, or use the Samba Web Administration Tool (SWAT) or WebMin to set the correct parameters.

4.3.3 Drive redirection

The Drive Redirection is another possibility to use a virtual disc drive on the remote computer. With Drive Redirection you do not have to use an image file but may work with a drive from your local computer on the remote machine. The drive is hereby shared over a TCP network connection. Devices such as floppy drives, hard discs, CD ROMs and other removable devices like USB sticks can be redirected. It is even possible to enable a write support so that for the remote machine is possible to write data to your local disc.

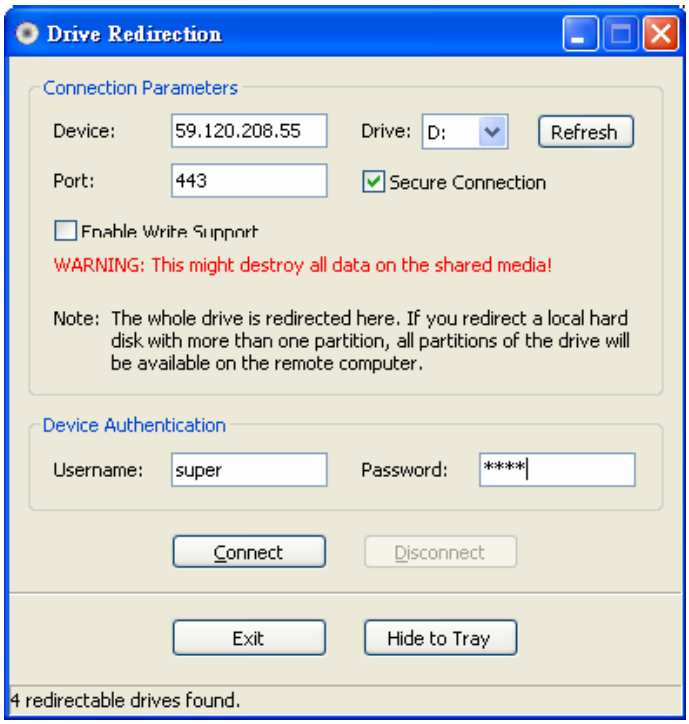

Active Image
No disk emulation set.
Drive Redirection
Drive Redirection allows you to share your local drive (floppy, CD-ROM, removable disks and harddisks) with the remote system.
Disable Drive Redirection *
Force read-only connections *
Apply
Reset to defaults
* Stored value is equal to the default.

Please note that Drive Redirection works on a level which is far below the operating system. That means that neither the local nor the remote operating system is aware that the drive is currently redirected. This may lead to inconsistent data as soon as one of the operating systems (either from the local machine, or from the remote host) is writing data on the device. If write support is enabled the remote computer might damage the data and the file system on the redirected device. On the other hand, if the local operating system writes data to the redirected device the drive cache of the operating system of the remote host might contain older data. This may confuse the remote host's operating system. We recommend using the Drive Redirection with care, especially the write support.

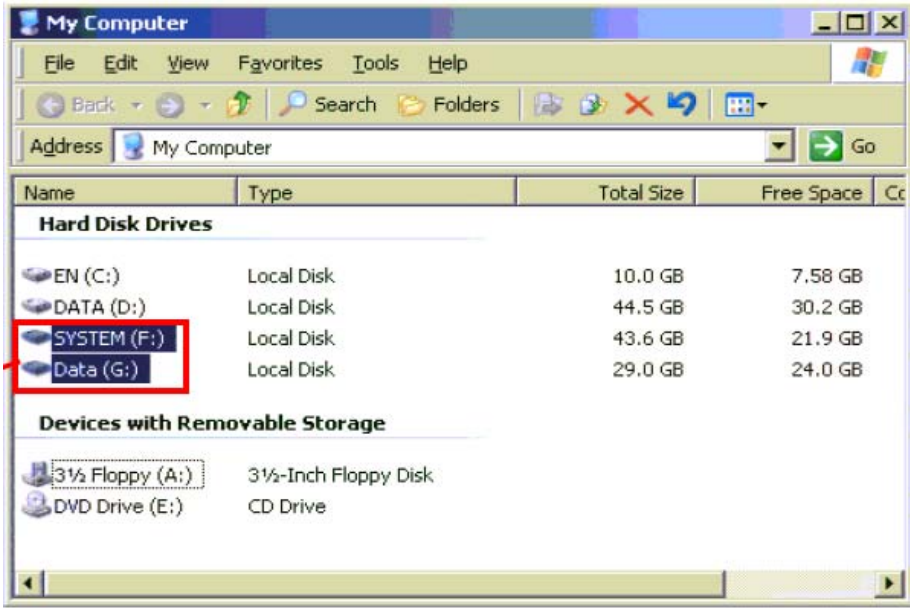
Parameter	Description
Disable Drive Redirection	If enabled the Drive Redirection is switched off.
Force read-only connections	If enabled the Write Support for the Drive Redirection is switched off. It is not possible to write on a redirected device.

Step 1. Please install Drive Redirection Software on remote computer first then run Drive Redirection application and fill in information accordingly.

Step2. Click **<Connect>** to create virtual drive on host computer.

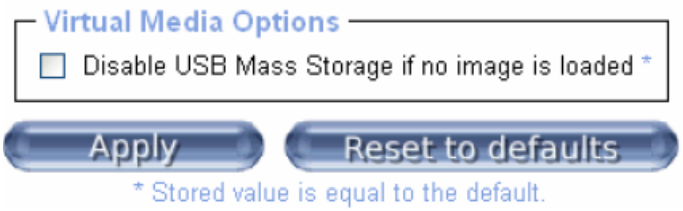


Step 3. Open the remote and you can see the virtual hard drive as below picture.


My Computer
File Edit View Favorites Tools Help
Back Search Folders
Address My Computer
Go
Name Type Total Size Free Space
Hard Disk Drives
EN (C:) Local Disk 10.0 GB 7.58 GB
DATA (D:) Local Disk 44.5 GB 30.2 GB
SYSTEM (F:) Local Disk 43.6 GB 21.9 GB
Data (G:) Local Disk 29.0 GB 24.0 GB
Devices with Removable Storage
3½ Floppy (A:) 3½-Inch Floppy Disk
DVD Drive (E:) CD Drive

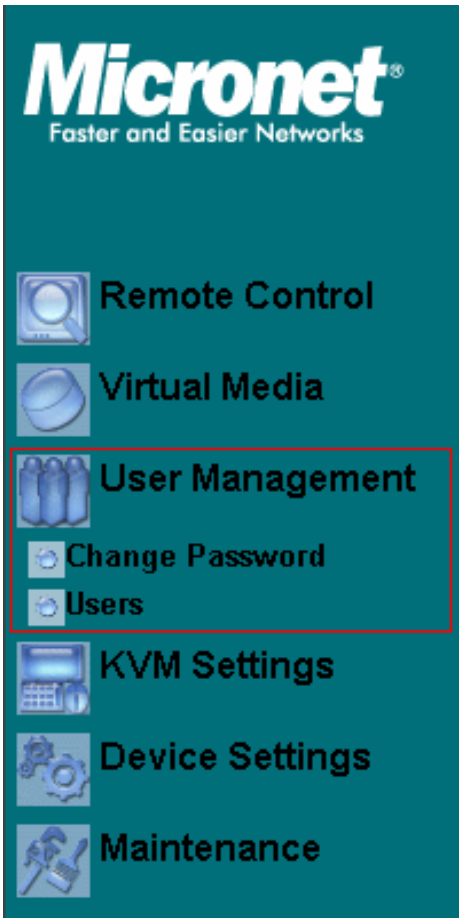
Please note that Virtual Drive creation is by Device manner not by Partition. Which means it looks for I/O in BIOS and sends the corresponding signal to host computer. This way, you are sending the entire hard drive (may consist of 'X' numbers of partitions) and emulate whatever number of partitions on host computer. You may also emulate a DVD-Drive with the same procedure. However, this DVD-Drive does not support Bootable function like Floppy and CD-Rom emulation.

4.3.4 Options


Virtual Media Options
Disable USB Mass Storage if no image is loaded *
Apply
Reset to defaults
* Stored value is equal to the default.

Set this option to disable the mass storage emulation (and hide the virtual drive) if no image file is currently loaded. If unset, and no file image will be found it may happen that the host system will hang on boot due to changes in the boot order, or the boot manager (LILO, GRUB). This case was reported for some Windows versions (2000, XP), other OS might not be fully excluded. This behavior depends on the BIOS version used in that machine.

4.4 User Management

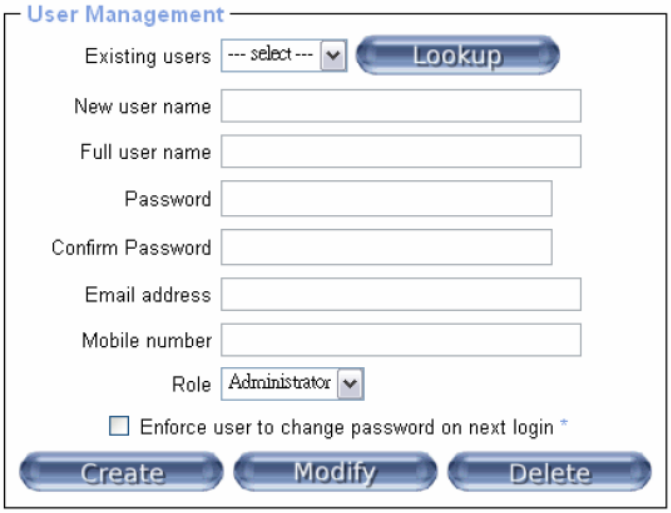


4.4.1 Change Password

Figure 5-14 Setting Password

Parameter	Description
Old Password	Type in current password
New Password	type in new password
Confirm New Password	Re-type new password for verification

4.4.2 Users Account



There are three kinds of levels of user accounts:

- **Super:** Has all possible rights to configure the device.
- **Administrator:** Has partial rights to change configuration apart from critical settings.
- **User:** Has permission to access basic function of open Remote Console.

The SP1200A comes with 1 pre-configured user account that has fixed permissions. The account “super” has all possible rights to configure the device and to use all functions SP1200A offers. Upon delivery, the account “super” has the password “pass”. Make sure to change password immediately after you have installed or on initial access of your SP1200A.

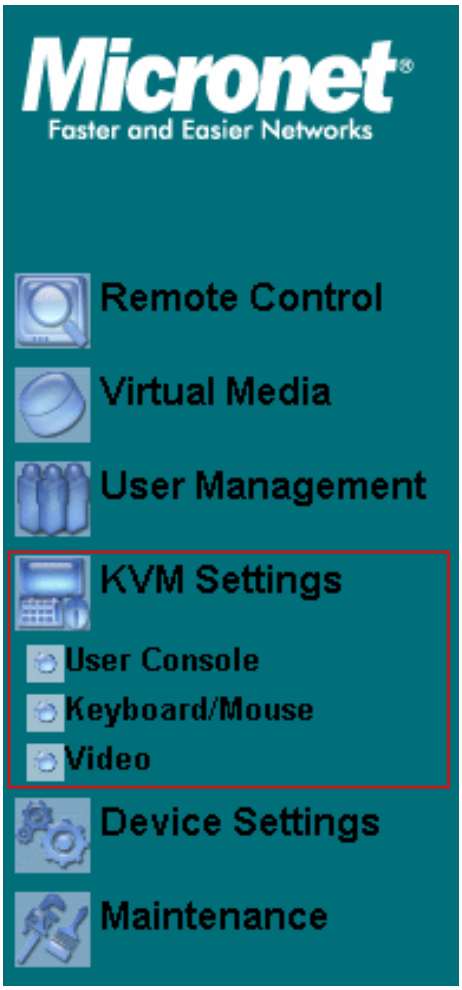
Parameter	Description
Existing users	Select an existing user for modification. Once a user has been selected, click the lookup button to see the user information.
New User name	The new user name for the selected account.
Password	The password for the login name. It must be at least three characters long.
Confirm password	Confirmation of the password above.
Email address	This is optional.
Mobile number	This information may be optionally provided.

Role	Each user can be a member of a group (named a “role”) – there kinds can be chose from: super, administrator, or a regular user.

To create a user, press the button ***<Create>****. The* ***<Modify>*** *button changes the displayed user settings. To delete a user, press the button* ***<Delete>****.*

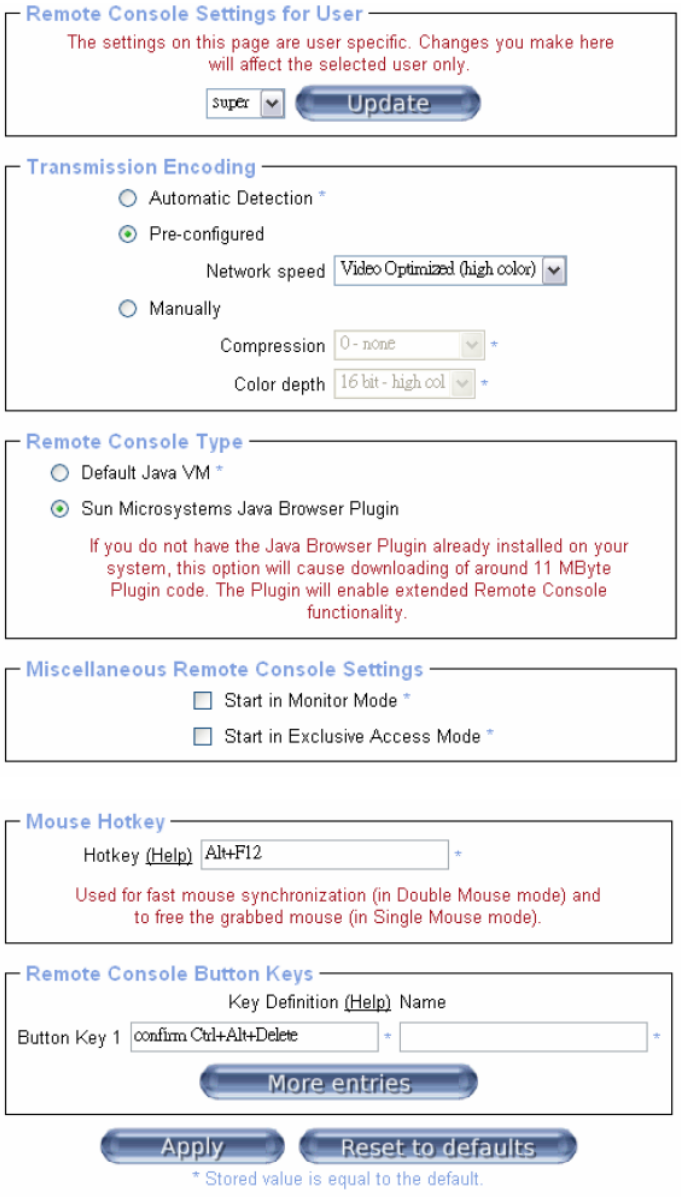
The SP1200A is equipped with a host-independent processor and memory unit which both have a limitation in terms of the processing instructions and memory space. To guarantee an acceptable response time we recommend not exceeding the number of 15 users connected to the SP1200A at the same time. The memory space that is available onto the SP1200A mainly depends on the configuration and the usage (log file entries etc.). That’s why we recommend not storing more than 150 user profiles.

4.5 KVM Settings



4.5.1 User Console

The following settings are user specific. That means, the super user can customize these settings for every users separately. Changing the settings for one user does not affect the settings for the other users.


Remote Console Settings for User
The settings on this page are user specific. Changes you make here will affect the selected user only.
super
Update
Transmission Encoding
Automatic Detection *
Pre-configured
Network speed
Video Optimized (high color)
Manually
Compression
0 - none
Color depth
16 bit - high col
Remote Console Type
Default Java VM *
Sun Microsystems Java Browser Plugin
If you do not have the Java Browser Plugin already installed on your system, this option will cause downloading of around 11 MByte Plugin code. The Plugin will enable extended Remote Console functionality.
Miscellaneous Remote Console Settings
Start in Monitor Mode *
Start in Exclusive Access Mode *
Mouse Hotkey
Hotkey (Help)
Alt+F12
Used for fast mouse synchronization (in Double Mouse mode) and to free the grabbed mouse (in Single Mouse mode).
Remote Console Button Keys
Key Definition (Help)
Name
Button Key 1
confirm Ctrl+Alt+Delete
More entries
Apply
Reset to defaults
* Stored value is equal to the default.

Transmission Encoding

The Transmission Encoding setting allows changing the image-encoding algorithm that is used to transmit the video data to the Remote Console window. It is possible to optimize the speed of the remote screen processing depending on the number of users working at the same time and the network bandwidth of the connection line (Modem, ISDN, DSL, LAN, etc.).

Parameter	Description
Automatic detection	The encoding and the compression level are determined automatically from the available bandwidth and the current content of the video image.
Pre-configured	The pre-configured settings deliver the best result because of optimized adjustment of compression and color depth for the indicated network speed.
Manually	Allows adjusting both compression rate and the color depth individually. Depending on the selected compression rate the data stream between the SP1200A and the Remote Console will be compressed in order to save bandwidth. Since high compression rates consume more computing power of SP1200A, they should not be used while several users are accessing the SP1200A simultaneously. The standard color depth is 16 Bit (65536 colors). The other color depths are intended for slower network connections in order to allow a faster transmission of data. Therefore compression level 0 (no compression) uses only 16 Bit color depth. At lower bandwidths only 4 Bit (16 colors) and 2 Bit (4 gray scales) are recommended for typical desktop interfaces. Photo-like pictures have best results with 4 Bit (16 gray scales). 1 Bit color depth (black/white) should only be used for extremely slow network connections.

Remote Console Type

The menu specifies which Remote Console Viewer to use.

Parameter	Description
Default Java-VM	Uses the default Java Virtual Machine of your Browser. This may be the Microsoft JVM for the Internet Explorer, or the Sun JVM if it is configured this way. Use of the Sun JVM may also be forced (see below).
Sun Microsystems Java Browser Plug-in	Instructs the web browser of your administration system to use the JVM of Sun Microsystems. The JVM in the browser is used to run the code for the Remote Console window, which is actually a Java Applet. If you check this box for the first time on your administration system and the appropriate Java plug-in is not already installed on your system, it will be downloaded and installed automatically. However, in order to make the installation possible, you still need to answer the according dialogs with “yes”. The download volume is around 11 Mbytes. The advantage of downloading Sun's JVM lays in providing a stable and identical Java Virtual Machine across different platforms. The Remote Console software is optimized for these JVM versions and offers wider range of functionality when run in SUN's JVM. Please make sure that you are installing Sun JVM 1.4.2 or above to your client system.

Miscellaneous Remote Console Settings

Parameter	Description
Start in Monitor Mode	Sets the initial value for the monitor mode. By default the monitor mode is off. In case you switch it on, the Remote Console window will be started in a read only mode.
Start in Exclusive Access Mode	Enables the exclusive access mode immediately at Remote Console startup. This forces the Remote Consoles of all other users to close. No one can open the Remote Console at the same time again until this user disables the exclusive access or logs off.

Mouse Hotkey

Allows specifying a hotkey combination which starts either the mouse synchronization process if pressed in the Remote Console, or is used to leave the single mouse mode.

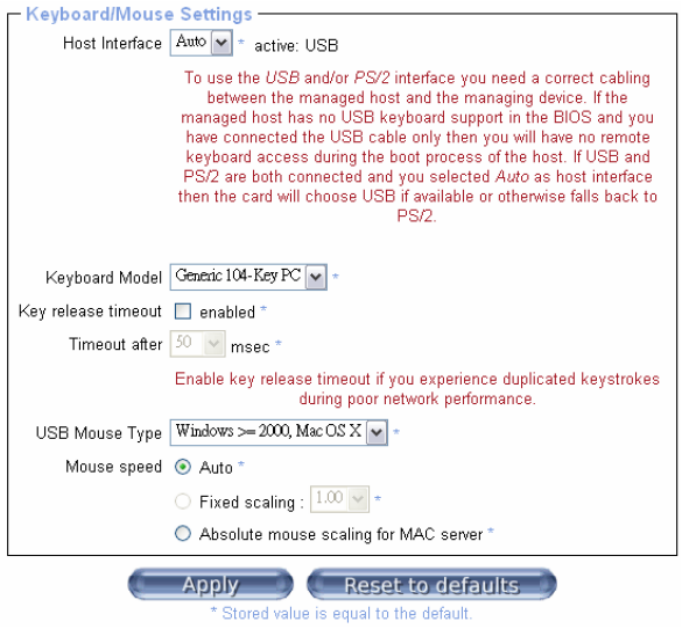
Remote Console Button Keys

Button Keys allow simulating keystrokes on the remote system that cannot be generated locally. The reason for this might be a missing key or the fact, that the local operating system of the Remote Console is unconditionally catching this keystroke already. Typical examples are “Control+Alt+Delete” on Windows and DOS, what is always caught, or “Control+Backspace” on Unix-like OS for terminating the X-Server. The syntax to define a new Button Key is as follows:

[confirm] <keycode>[+|-[*]<keycode>]*

Parameter	Description
confirm	Requests confirmation by a dialog box before the key strokes will be sent to the remote host.
keycode	The key to be sent. Multiple key codes can be concatenated with a plus, or a minus sign. The plus sign builds key combinations, all keys will be pressed until a minus sign or the end of the combination is encountered. In this case all pressed keys should be released in reversed sequence. The minus sign builds single, separate key presses and releases. The star inserts a pause with duration of 100 milliseconds.

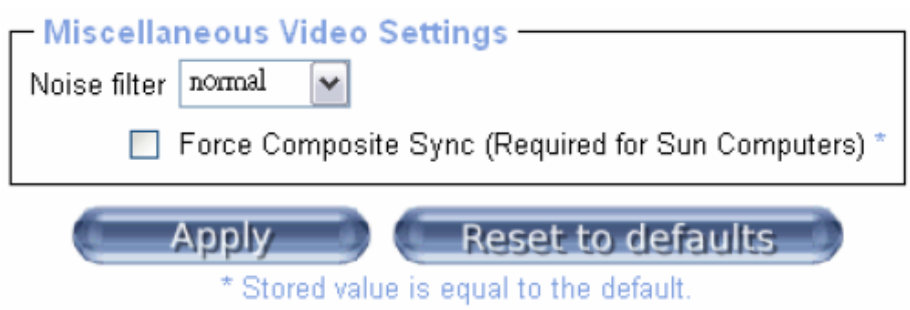
4.5.2 Keyboard/Mouse


Keyboard/Mouse Settings
Host Interface
Auto
active: USB
To use the USB and/or PS/2 interface you need a correct cabling between the managed host and the managing device. If the managed host has no USB keyboard support in the BIOS and you have connected the USB cable only then you will have no remote keyboard access during the boot process of the host. If USB and PS/2 are both connected and you selected Auto as host interface then the card will choose USB if available or otherwise falls back to PS/2.
Keyboard Model
Generic 104-Key PC
Key release timeout
enabled
Timeout after
50
msec
Enable key release timeout if you experience duplicated keystrokes during poor network performance.
USB Mouse Type
Windows >= 2000, Mac OS X
Mouse speed
Auto
Fixed scaling :
1.00
Absolute mouse scaling for MAC server
Apply
Reset to defaults
* Stored value is equal to the default.

Parameter	Description
Host Interface	Enables a certain interface the mouse is connected to. You can choose between “Auto” for automatic detection, “USB” for an USB mouse, and “PS/2” for a PS/2 mouse. To use the USB and/or PS/2 interface you need a correct cabling between the managed host and the managing device. If the managed host has no USB keyboard support in the BIOS and you have connected the USB cable only then you will have no remote keyboard access during the boot process of the host. If USB and PS/2 are both connected and you selected “Auto” as host interface, then the card will select “USB” if available or otherwise falls back to “PS/2”. To get USB remote keyboard access during the boot process of the host, the following conditions must be fulfilled: ➢ The host BIOS must have USB keyboard support. ➢ The USB cable must be connected or must be selected in the Host interface option.
PS/2 Keyboard Model	Enables a certain keyboard layout. You can choose between “Generic 101-Key PC” for a standard keyboard layout, “Generic 104-Key PC” for a standard keyboard layout extended by three additional windows keys, “Generic 106-Key PC” for a Japanese keyboard, and “Apple Macintosh” for the Apple Macintosh.
Keyboard timeout	Recommended as “enable” for keyboard timeout when host is UNIX or UNIX-like OS.

USB Mouse Type	Enables USB mouse type. Choose between “Windows >= 2000 , MacOSX” for MS Windows 2000 or Windows XP, Mac OSX or “Other Operating Systems” for MS Windows NT, Unix or Unix-like OS, or OS X. In “Windows >= 2000 , MacOSX” mode the remote mouse is always synchronized with the local mouse.
Mouse Speed	➢ **Auto mouse speed:** Use this option if the mouse settings on host use an additional acceleration setting. The SP1200A tries to detect the acceleration and speed of the mouse during the mouse sync process. ➢ **Fixed mouse speed:** Use a direct translation of mouse movements between the local and the remote pointer. You may also set a fixed scaling which determines the pixel-amount of the remote mouse pointer movement when the local mouse pointer is moved by one pixel. This option is used to manually control the remote mouse speed and only works when the mouse settings on the host are linear. This means mouse acceleration of OS should be disabled, and the intelligent mouse synchronization of SP1200A is not functioning under this setting. ➢ **Absolute mouse scaling for MAC server:** Use this option for MAC server.

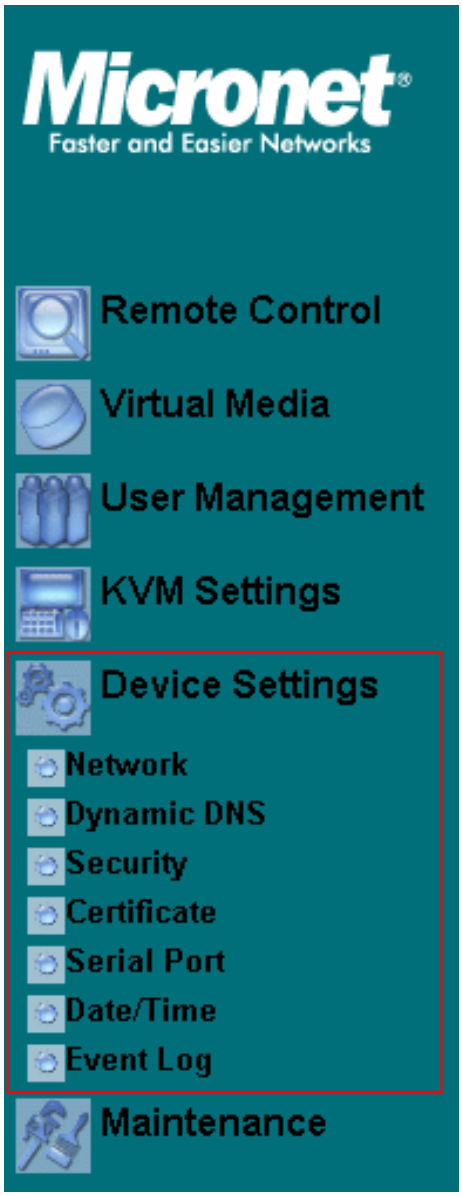
4.5.3 Video



Parameter	Description
Noise filter	This option defines how the SP1200A reacts to small changes in the video input signal. Turning on the noise filter can help reduce video flickering that is often caused by distortions, as well as lowering unnecessary bandwidth consumption. A large filter setting needs less network traffic and leads to a faster video display, but small changes in some display regions may not be recognized immediately. A small filter displays all changes instantly but may lead to a constant amount of network traffic even if the display content is not really changing (depending on the quality of the video input signal). All in all the default setting should be suitable for most situations.

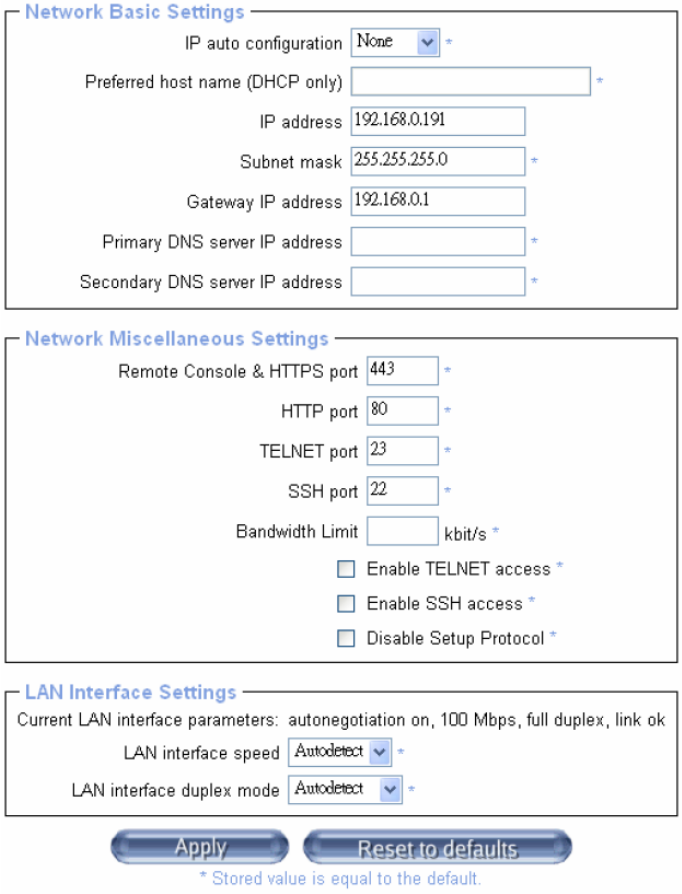
Force Composite Sync (Required for Sun Computers)	When connecting the device directly to legacy Sun computer (with composite sync as the video output), it may be possible that SP1200A don't recognize the composite sync automatically. To support signal transmission from a Sun machine, enable this option. If not enabled the picture of the remote console will not be visible.

4.6 Device Settings



4.6.1 Network

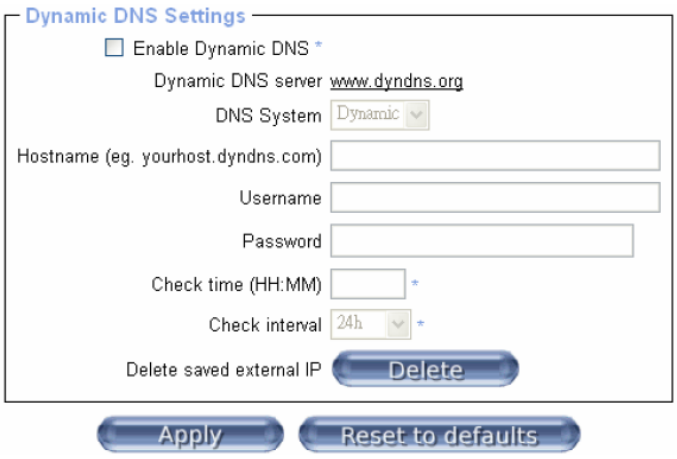
The Network Settings panel allows changing network related parameters. Each parameter will be explained below. Once applied the new network settings will immediately come into effect.



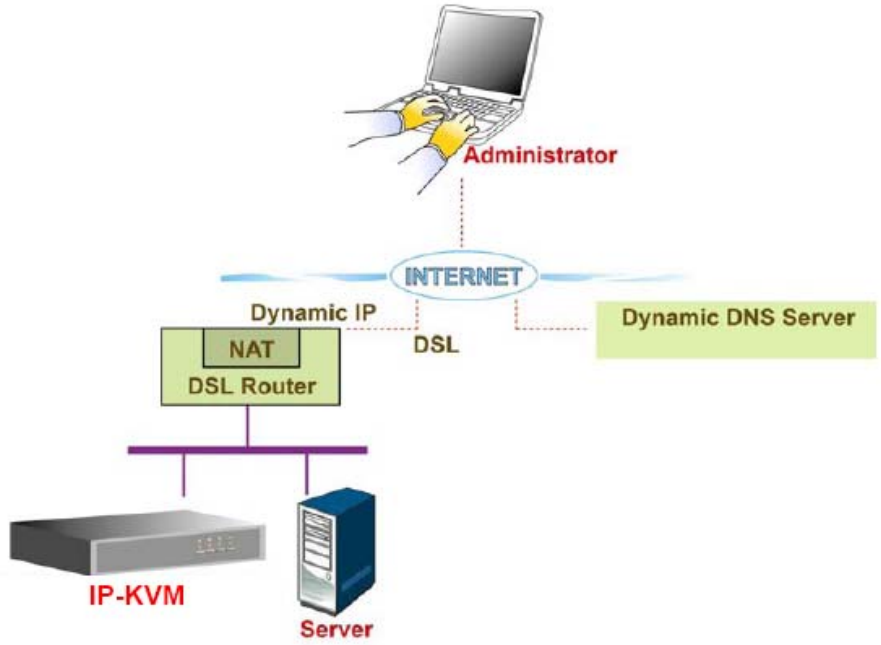
Parameter	Description
IP auto configuration	With this option you can control if the SP1200A should fetch its network settings from a DHCP or BOOTP server. For DHCP, select “dhcp” , and for BOOTP select “bootp” accordingly. If you choose “none” then IP auto configuration is disabled.
Preferred host name	Preferred host name to request from DHCP server. Whether the DHCP server takes the SP1200A’s suggestion into account or not depends on the server configuration.
IP address	IP address in the usual dot notation.
Subnet Mask	The net mask of the local network.
Gateway IP address	In case the SP1200A should be accessible from networks other than the local one, this IP address must be set to the local network router's IP address.
Primary DNS Server IP Address	IP address of the primary Domain Name Server in dot notation. This option may be left empty, however the SP1200A will not be able to perform name resolution.

Secondary DNS Server IP Address	IP address of the secondary Domain Name Server in dot notation. It will be used in case the Primary DNS Server cannot be contacted.
Remote Console And HTTPS port	Port number at which the SP1200A's Remote Console server and HTTPS server are listening. If left empty the default value will be used.
HTTP port	Port number at which the SP1200A's HTTP server is listening. If left empty the default value will be used.
Telnet port	Port number at which the SP1200A's Telnet server is listening. If left empty the default value will be used.
SSH port	Port number at which the SP1200A SSH (Secure SHell) server is listening to. If left empty the default value (port 22) will be used.
Bandwidth limitation	The maximum network traffic generated through the SP1200A Ethernet device. Value in Kbit/s.
Enable Telnet access	This enables the Telnet function.
Enable SSH access	This enables the SSH (Secure SHell) function.
Disable Setup Protocol	Enable this option to exclude the SP1200A from the setup protocol. Setup protocol is a proprietary layer-2 MAC-based protocol to allow some configuration software to detect SP1200A devices in the network, even without IP address, and then config network related settings to SP1200A.
LAN Interface Settings	The “Autodetect” will set the Ethernet speed to the fastest possible value supported by both endpoints of the link. For example, if you use a 10M/half duplex HUB, this speed will be auto-selected. If this option does not work with some network device (HUB, switches, and routers), you can set the Ethernet interface speed of SP1200A manually to the values as supported by the network device.

4.6.2 Dynamic DNS



A freely available Dynamic DNS service (www.dyndns.org) can be used in the following scenario.



The SP1200A is reachable via the IP address of the DSL router, which is dynamically assigned by the provider. Since the administrator does not know the IP address assigned by the provider, the SP1200A connects to a special dynamic DNS server in regular intervals and registers its IP address there. The administrator may contact this server as well and pick up the same IP address belonging to his card. The administrator has to register an SP1200A that is supposed to take part in the service with the Dynamic DNS Server and assign a certain hostname to it. He will get a nickname and a password in return to the registration process. This account information together with the hostname is needed in order to determine the IP address of the registered SP1200A.

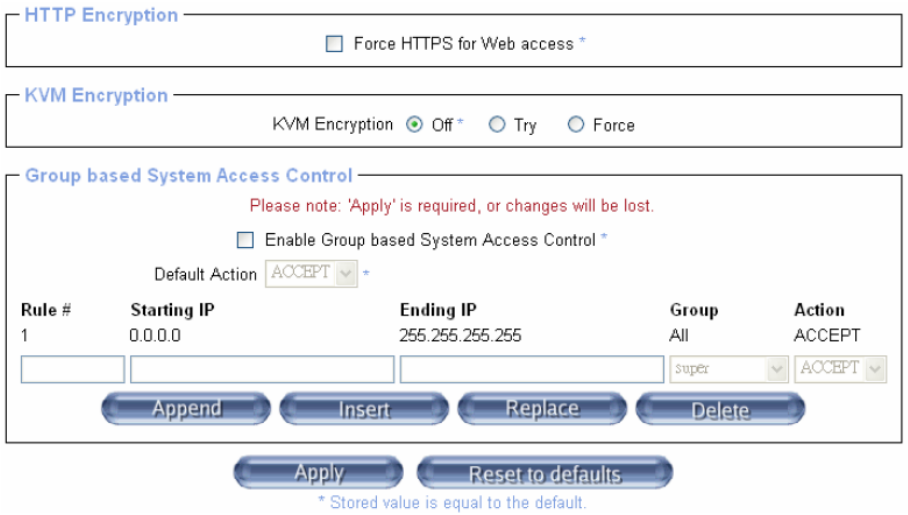
Steps for Setting UP DDNS:

- Make sure that the LAN interface of the SP1200A is properly configured.
- Enter the Dynamic DNS Settings configuration dialog as shown in Figure.
- Enable Dynamic DNS and change the settings according to your needs (see below).

Parameter	Description
Enable Dynamic DNS	This enables the Dynamic DNS service. This requires a configured DNS server IP address.

Dynamic DNS server	This is the server name where SP1200A registers itself in regular intervals. Currently, this is a fixed setting since only dyndns.org is supported for now.
DNS System	Choose Dynamic for free DNS service. Custom for your own domain.
Hostname	This is the hostname of the SP1200A that is provided by the Dynamic DNS Server. Use the whole name including the domain (e.g. testserver.dyndns.org) not just the actual hostname.
Username	You have registered this username during your manual registration with the Dynamic DNS Server. Spaces are not allowed in the username.
Password	You have used this password during your manual registration with the Dynamic DNS Server.
Check time	The SP1200A registers itself for initiating the IP address stored in the Dynamic DNS server at this time.
Check interval	This is the interval for reporting again to the Dynamic DNS server for updating the IP address associated with the Domain Name of the SP1200A.

4.6.3 Security


HTTP Encryption
Force HTTPS for Web access *
KVM Encryption
KVM Encryption Off * Try Force
Group based System Access Control
Please note: 'Apply' is required, or changes will be lost.
Enable Group based System Access Control *
Default Action ACCEPT *
Rule # Starting IP Ending IP Group Action
1 0.0.0.0 255.255.255.255 All ACCEPT
super ACCEPT
Append Insert Replace Delete
Apply Reset to defaults
* Stored value is equal to the default.

Force HTTPS

If this option is enabled access to the web front-end is only possible using an HTTPS connection. The SP1200A will not listen on the HTTP port for incoming connections.

KVM Encryption

This option controls the encryption of the RFB protocol. RFB is used by the Remote Console to transmit both the screen data to the administrator machine and keyboard and mouse data back to the host. If set to “Off”, no encryption

will be used. If set to ”Try”, the applet tries to make an encrypted connection. In case connection establishment fails for any reason an unencrypted connection will be used. If set to “Force” the applet tries to make an encrypted connection with certificate. An error will be reported in case connection establishment fails.

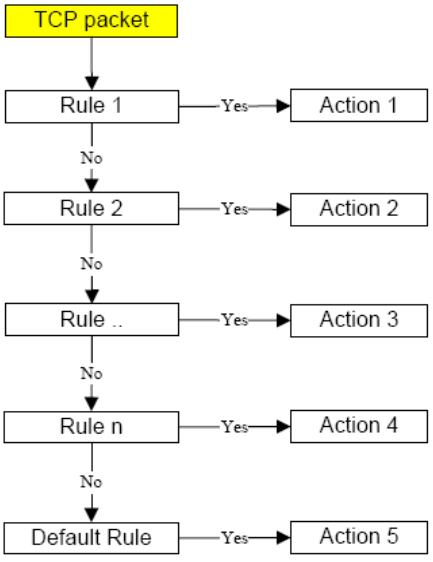
Group-based System Access Control

This is the IP filtering function that keeps unauthorized hosts from accessing to the SP1200A by specifying IP filtering rules. It is important to fully understand what an IP filter is. If you don't fully understand this, you will get unexpected results against your original planning.

The Chain rule determines whether the access from the hosts is allowed or not. It can be one of these two values:

- **ACCEPT:** access allowed.
- **DROP:** access not allowed.

The rule can be configured to apply to a particular Group level (All, User, Super, Administrator). When the SP1200A receives a TCP packet, it will process the packet with the chain rule depicted below. The process ordering is important. The packet will enter the chain rule 1 first, if meet the rule then take action directly, otherwise go to chain rule 2.



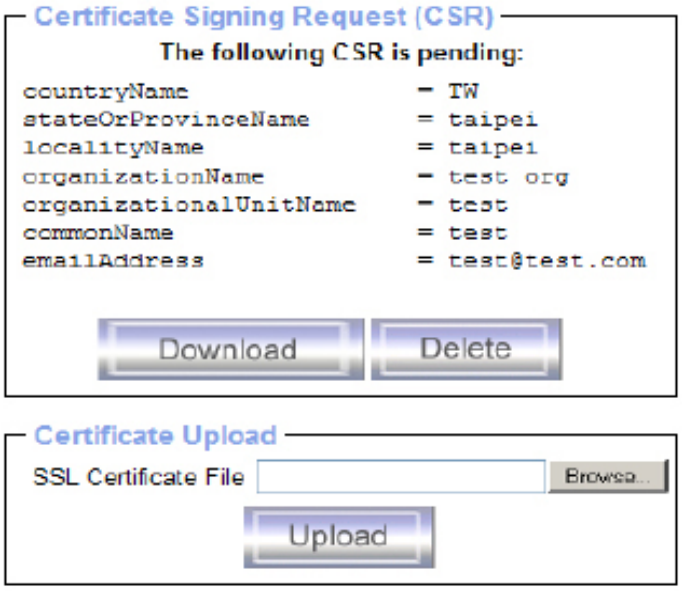
4.6.4 Certificate

The SP1200A uses the Secure Socket Layer (SSL) protocol for any encrypted network traffic between itself and a connected client. During the connection establishment the SP1200A has to expose its identity to a client using a cryptographic certificate. The default certificate comes with SP1200A device upon delivery is for testing purpose only. System administrator should not rely on this default certificate as the secured global access mechanism through Internet. However, it is possible to generate and install a new base 64 X.509 certificate that is unique for a particular device. In order to do that, the SP1200A is able to generate a new cryptographic key and the associated Certificate Signing Request (CSR) that needs to be certified by a certification authority (CA). A certification authority verifies that you are the person who you claim you are, and signs and issues a SSL certificate to you.

The following steps are necessary to create and install a SSL certificate:

- Create a SSL Certificate Signing Request. You need to fill out a number of fields that are explained below. Once this is done, click on the button **<Create>** which will initiate the Certificate Signing Request generation. The CSR can be downloaded to your administration machine with the **<Download>** button.

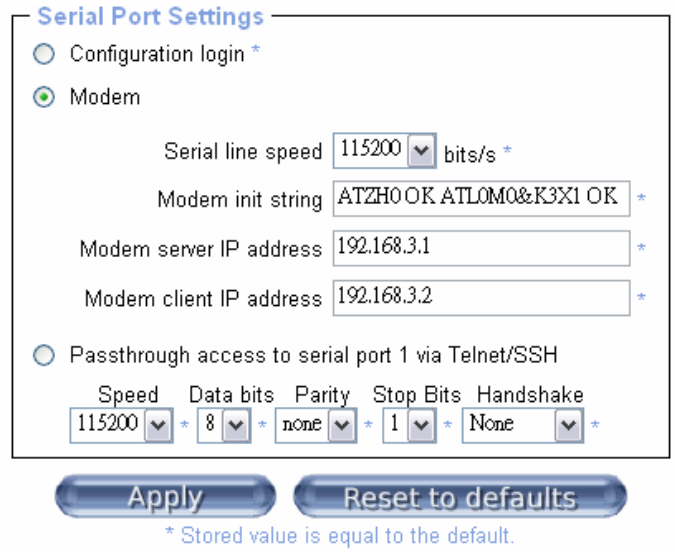
- Send the saved CSR string to a CA for certification. You will get the new certificate from the CA after a more or less complicated traditional authentication process (depending on the CA).
- Upload the certificate to the SP1200A using the **<Upload>** button



Parameter	Description
Common name	This is the network name of the SP1200A once it is installed in the user's network (usually the fully qualified domain name). It is identical to the name that is used to access the SP1200A with a web browser (without the “http://” prefix). In case the name given here and the actual network name differ, the browser will pop up a security warning when the SP1200A is accessed using HTTPS.
Organizational unit	This field is used for specifying to which department within an organization the SP1200A belongs.
Organization	The name of the organization to which the SP1200A belongs.
Locality/City	The city where the organization is located.
State/Province	The state or province where the organization is located.
Country (ISO code)	The country where the organization is located. This is the two-letter ISO code, e.g. DE for Germany, or US for the USA. (Note: the country code has to be entered in CAPITAL LETTERS.)
Challenge Password	Some certification authorities require a challenge password to authorize later changes on the certificate (e.g. revocation of the certificate). The minimal length of this password is 4 characters.
Confirm Challenge Password	Confirmation of the Challenge Password
Email	The email address of a contact person that is responsible for the SP1200A and its security.

Key length	This is the length of the generated key in bits. 1024 Bits are supposed to be sufficient for most cases. Longer keys may result in slower response time of the SP1200A during connection establishment.

4.6.5 Serial Port


Serial Port Settings
Configuration login *
Modem
Serial line speed 115200 bits/s *
Modem init string ATZH0 OK ATL0M0&K3X1 OK *
Modem server IP address 192.168.3.1 *
Modem client IP address 192.168.3.2 *
Passthrough access to serial port 1 via Telnet/SSH
Speed Data bits Parity Stop Bits Handshake
115200 * 8 * none * 1 * None *
Apply
Reset to defaults
* Stored value is equal to the default.

The SP1200A's Serial Settings allows you to specify what device is connected to the serial port and how to use it.

Configuration or Console Login

Do not use the serial port for any special function but use it only for the initial configuration.

Modem

The SP1200A offers remote access using a telephone line in addition to the standard access over the built-in Ethernet adapter. The modem needs to be connected to the serial interface of the SP1200A. Logically, connecting to the SP1200A using a telephone line means nothing else than building up a dedicated point-to-point connection from your console computer to the device. In other words, the SP1200A acts as an Internet Service Provider (ISP) to which you can dial in. The connection is established using the Point-to-Point Protocol (PPP). Before you connect to the SP1200A, make sure to configure your console computer accordingly. For instance, on Windows based operating systems you can configure a dial-up network connection, which defaults to the right settings like PPP. The Modem Settings panel allows you to

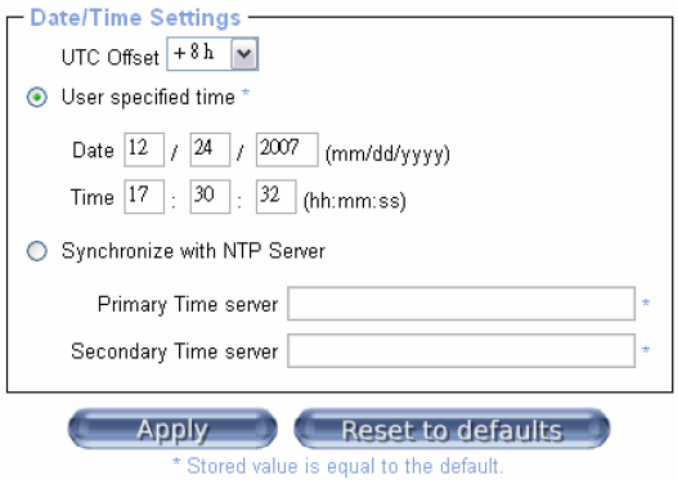
configure the remote access to the SP1200A using a modem. The meaning of each parameter will be described below. The modem settings are part of the serial settings panel.

Parameter	Description
Serial line speed	The speed the SP1200A is communicating with the modem. Most of all modems available today will support the default value of 115200 bps. In case you are using an old modem and discovering problems try to lower this speed.
Modem Init String	The initialization string used by the SP1200A to initialize the modem. The default value will work with all modern standard modems directly connected to a telephone line. In case you have a special modem or the modem is connected to a local telephone switch that requires a special dial sequence in order to establish a connection to the public telephone network, you can change this setting by giving a new string.
Modem server IP address	This IP address will be assigned to the SP1200A itself during the PPP handshake. Since it is a point-to-point IP connection virtually every IP address is possible but you must make sure, it is not interfering with the IP settings of the SP1200A and your console computer. The default value will work in most cases.
Modem client IP address	This IP address will be assigned to your console computer during the PPP handshake. Since it is a point-to-point IP connection virtually every IP address is possible but you must make sure, it is not interfering with the IP settings of the SP1200A and your console computer. The default value will work in most cases.

Pass Through Access to Serial Port via Telnet

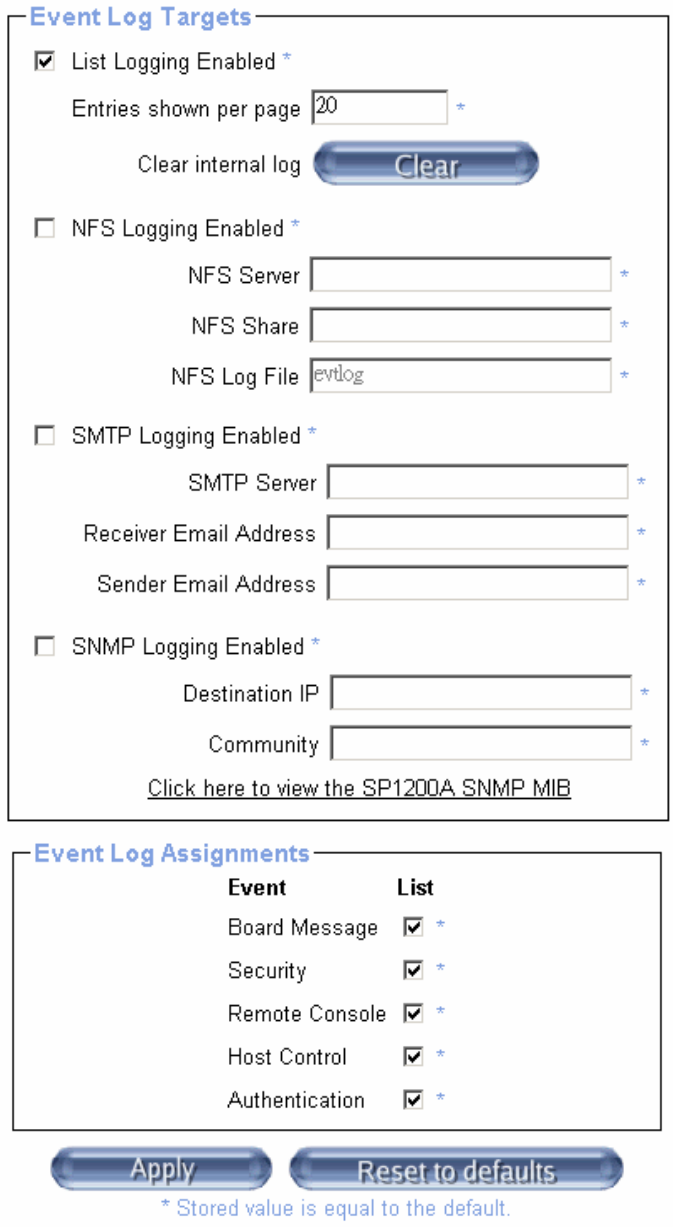
Using this option, it is possible to connect an arbitrary device to the serial port and access (assuming it provides terminal support) via Telnet. Select the appropriate options for the serial port and use the Telnet Console, or a standard Telnet client to connect to the SP1200A.

4.6.6 Date / Time


Date/Time Settings
UTC Offset +8 h
User specified time *
Date 12 / 24 / 2007 (mm/dd/yyyy)
Time 17 : 30 : 32 (hh:mm:ss)
Synchronize with NTP Server
Primary Time server *
Secondary Time server *
Apply
Reset to defaults
* Stored value is equal to the default.

This link refers to a page, where the internal real-time clock of the SP1200A can be set up. Users have the possibility to adjust the clock manually, or to use a NTP timeserver. Without a timeserver, your time setting will not be persistent, so you have to adjust it again, after SP1200A loses power for more than a few minutes. To avoid this, you can use a NTP timeserver, which sets up the internal clock automatically to the current UTC time. NTP server time is always UTC and there is a setting that allows you to set up a static offset to get your local time.

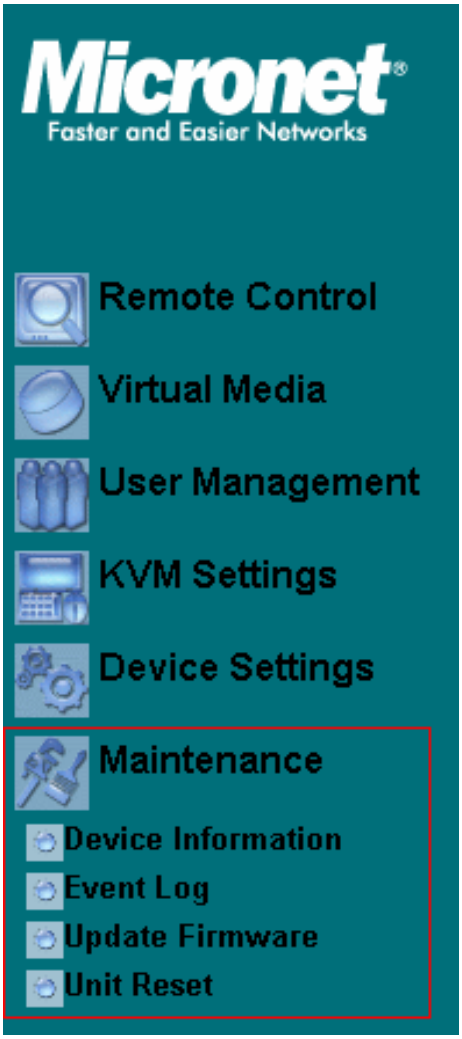
4.6.7 Event Log



Important events like a login failure or a firmware update are logged to a selection of logging destinations. Each of those events belongs to an event group, which can be activated separately. The common way to log events is to use the internal log list of the SP1200A. In order to show the log list, please click on **<Event Log>** under “Maintenance”. In the Event Log Settings you can choose how many log entries are shown on each page.

Parameter	Description
List logging enabled	The common way to log events is to use the internal log list of the SP1200A. In order to show the log list, please click on <Event Log> under “Maintenance”. Since the SP1200A’s system memory is used to save all the information, the maximum number of possible log list entries is restricted to 1000 events. Every entry that exceeds this limit overrides the oldest one.
NFS Logging enabled	Define a NFS server, where a directory or a static link has to be exported, to write all logging data to a file that is located there. To write logging data from more than one SP1200A devices to only one NFS share, you have to define a file name that is unique for each device. When you change the NFS settings and press the button **<Apply>**, the NFS share will be mounted immediately. That means, the NFS share and the NFS server must be filled with valid sources or you will get an error message.
SMTP Logging enabled	With this option, the SP1200A is able to send Emails to an address given by the Email address text field in the Event Log Settings. These mails contain the same description strings as the internal log file and the mail subject is filled with the event group of the occurred log event. In order to use this log destination you have to specify a SMTP server that has to be reachable from the SP1200A device and that needs no authentication at all (<serverip>:<port>).
SNMP Logging enabled	If this is activated, the SP1200A sends a SNMP trap to a specified destination IP address, every time a log event occurs. If the receiver requires a community string, you can set it in the appropriate text field. Most of the event traps only contain one descriptive string with all information about the log event. Only authentication and host power events have an own trap class that consists of several fields with detailed information about the occurred event. To receive this SNMP traps, any SNMP trap listener may be used.

4.7 Maintenance



4.7.1 Device Information

This section contains a summary with various information about SP1200A including firmware version. The Data file for support allows you to download the SP1200A data file with specific support information. This is an XML file with certain customized support information like the serial number etc. Users may send us this information together with a support request. It will help us to locate and solve your reported problem.

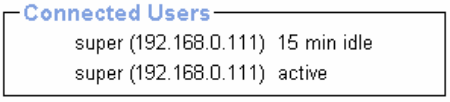
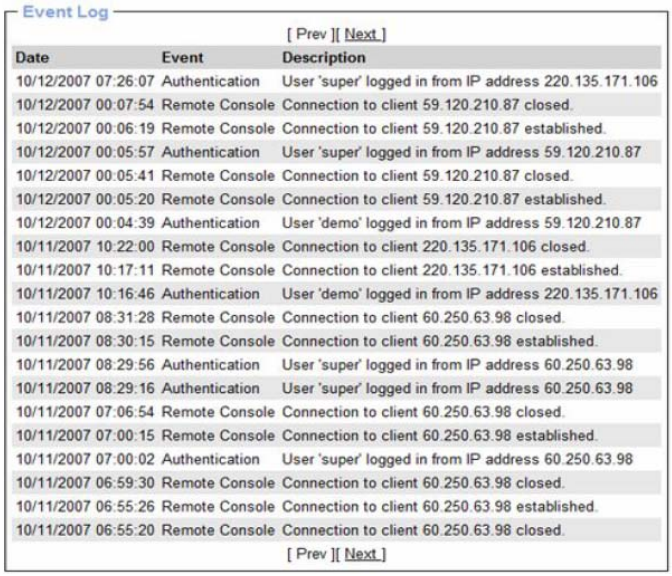


Figure above displays the SP1200A activity. From left to right the connected user(s), IP Address (from which host the user comes from) and its activity status is displayed. RC means that the Remote Console is open. If the Remote Console is opened in exclusive mode the term (exclusive mode) is added. To display the user activity the last column contains either the term ‘active’ for an active user or ‘30 min idle’ for an user who is inactive for a certain amount of time.

4.7.2 Even Log


Event Log
[Prev][Next]
Date Event Description
10/12/2007 07:26:07 Authentication User 'super' logged in from IP address 220.135.171.106
10/12/2007 00:07:54 Remote Console Connection to client 59.120.210.87 closed.
10/12/2007 00:06:19 Remote Console Connection to client 59.120.210.87 established.
10/12/2007 00:05:57 Authentication User 'super' logged in from IP address 59.120.210.87
10/12/2007 00:05:41 Remote Console Connection to client 59.120.210.87 closed.
10/12/2007 00:05:20 Remote Console Connection to client 59.120.210.87 established.
10/12/2007 00:04:39 Authentication User 'demo' logged in from IP address 59.120.210.87
10/11/2007 10:22:00 Remote Console Connection to client 220.135.171.106 closed.
10/11/2007 10:17:11 Remote Console Connection to client 220.135.171.106 established.
10/11/2007 10:16:46 Authentication User 'demo' logged in from IP address 220.135.171.106
10/11/2007 08:31:28 Remote Console Connection to client 60.250.63.98 closed.
10/11/2007 08:30:15 Remote Console Connection to client 60.250.63.98 established.
10/11/2007 08:29:56 Authentication User 'super' logged in from IP address 60.250.63.98
10/11/2007 08:29:16 Authentication User 'super' logged in from IP address 60.250.63.98
10/11/2007 07:06:54 Remote Console Connection to client 60.250.63.98 closed.
10/11/2007 07:00:15 Remote Console Connection to client 60.250.63.98 established.
10/11/2007 07:00:02 Authentication User 'super' logged in from IP address 60.250.63.98
10/11/2007 06:59:30 Remote Console Connection to client 60.250.63.98 closed.
10/11/2007 06:55:26 Remote Console Connection to client 60.250.63.98 established.
10/11/2007 06:55:20 Remote Console Connection to client 60.250.63.98 closed.
[Prev][Next]

The figure above displays the log list including the events that are logged by the SP1200A

4.7.3 Update Firmware

The SP1200A is a complete standalone device. The software it runs is called firmware. The firmware of the SP1200A can be updated remotely in order to install new functionality or special features. A new firmware update is a binary file which will be sent to you by email or which you can download from the supplier web site. If the firmware file is compressed (file suffix .zip) then you must unzip it before you can proceed. Under the Windows operating system you may use WinZip from http://www.winzip.com/ for decompression. Other operating systems might provide a program called unzip. Before you can start updating the firmware of your SP1200A, the new uncompressed firmware file has to be accessible on the system that you use for connecting.

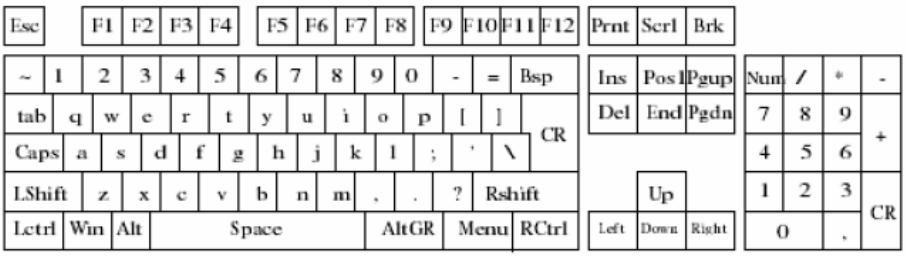
4.7.4 Unit Reset

This section allows you to reset specific parts of the device. This involves the both keyboard and mouse, the video engine and the SP1200A itself. Resetting the card itself is mainly needed to activate a newly updated firmware. It will close all current connections to the administration console and to the Remote Console. The whole process will take about half a minute. Resetting sub devices (e.g. video engine) will take few seconds only and does not result in closing connections. To reset a certain SP1200A functionality click on the button **<Reset>**. Only the super user is allowed to reset the SP1200A.

Chapter 5 Appendix

5.1 Key Codes

Table below shows the key codes used to defines keystrokes or hotkeys for several functions. Please note that these key codes do not represent necessarily key characters that are used on international keyboards. They name a key on a standard 104 key PC keyboard with an US English language mapping. The layout for this keyboard is shown in figure below. However, most modifier keys and other alphanumeric keys used for hotkey purposes in application programs are on an identical position, no matter what language mapping you are using. Some of the keys have aliases also, means they can be named by 2 key codes (separated by comma in the table).


Esc
F1 F2 F3 F4
F5 F6 F7 F8
F9 F10 F11 F12
Prnt Scrl Brk
~ 1 2 3 4 5 6 7 8 9 0 - = Bsp
Ins Pos1 Pgup
Num / * -
tab q w e r t y u i o p [ ]
Del End Pgdn
7 8 9
CR
+
Caps a s d f g h j k l ; ' \
4 5 6
LShift z x c v b n m , . ? Rshift
Up
1 2 3
CR
Lctrl Win Alt Space AltGR Menu RCtrl
Left Down Right
0 .

Key (and aliases)		
0 - 9	SPACE	PAGE DOWN
A - Z	ALTGR	UP
, TILDE	ESCAPE, ESC	LEFT
-, MINUS	F1	DOWN
=, EQUALS	F2	RIGHT
;	F3	NUM LOCK
'	F4	NUMPAD0
<, LESS	F5	NUMPAD1
,	F6	NUMPAD2
.	F7	NUMPAD3
/, SLASH	F8	NUMPAD4
BACK SPACE	F9	NUMPAD5
TAB	F10	NUMPAD6
[	F11	NUMPAD7
]	F12	NUMPAD8
ENTER	PRINTSCREEN	NUMPAD9
CAPS LOCK	SCROLL LOCK	NUMPADPLUS,NUMPAD PLUS
\, BACK SLASH	BREAK	NUMPAD/
LSHIFT, SHIFT	INSERT	NUMPADMUL,NUMPAD MUL
RCTRL	HOME	NUMPADMINUS,NUMPAD MINUS
RSHIFT	PAGE UP	NUMPADENTER
LCTRL, CTRL	DELETE	WINDOWS
LALT, ALT	END	MENU

5.2 Video Modes

Table below lists the video modes SP1200A supports. Please don't use other custom video settings besides these. Otherwise, SP1200A may not be able to detect them.

Resolution (x, y)	Refresh Rates (Hz)
640 x 350	70, 85
640 x 400	56, 70, 85
640 x 480	60, 72, 75, 85, 90, 100, 120
720 x 400	70, 85
800 x 600	56, 60, 70, 72, 75, 85, 90, 100
832 x 624	75
1024 x 768	60, 70, 72, 75, 85, 90, 100
1152 x 864	75
1152 x 870	75
1152 x 900	66
1280 x 960	60
1280 x 1024	60, 75
1600 x 1200	60

5.3 User Role Permissions

Table below lists the user role permissions granted for three user role groups: "Superuser", "Administrator", and "User".

Function	User	Administrator	Superuser
Remote Control: KVM	x	x	x
Remote Control: Remote Power	-	x	x
Remote Control: Telnet Console	x	x	x
Virtual Media	x	x	x
User Management: Change Password	x	x	x
User Management: Users	-	-	x
KVM Settings: User Console	x (w/o Misc. Settings)	x	x
KVM Settings: Keyboard/Mouse	-	x	x
KVM Settings: Video	-	x	x
Device Settings	-	-	x
Maintenance: Device Information	x	x	x
Maintenance: Event Log	-	-	x
Maintenance: Update Firmware	-	-	x
Maintenance: Unit Reset	Keyboard/ Mouse, Video	Keyboard/ Mouse, Video	Keyboard/ Mouse, Video, Device

5.4 SP1200A TCP Port Number

Port	Protocol	Purpose
23	Telnet over TCP	Web & Telnet client
80	HTTP over TCP	Web
443	HTTPS over TCP	Web
443	RFB over TCP	Remote Console
443	HTTPS over TCP	Drive Redirection
139	SMB over TCP	CD-ROM Image (Samba Service)
139	SMB over TCP	Floppy disk(Samba Service)
1024	SMB over TCP	Samba Service source port
162	SNMP over TCP	SNMP trap reception port
1024	SNMP over TCP	SNMP source port
443	RFB over TCP	Remote Keyboard and Mouse data

5.5 Bandwidth Consumption

The preconfigured network speed selection simply results in a different Compression and Color Depth configuration in order to match the different bandwidth limitations of the network type (UMTS, ISDN, etc.). The following suggested network bandwidth planning table for SP1200A installation is from the test results with 3D-Labyrinth screen saver at Resolution 800x600, the worst case consuming the highest network bandwidth.

	Compression	Color Depth	Used Bandwidth	Comment
Video Optimized	Video Optimized	8 bit	3.0 - 3.3 MB/s	uncompressed, synchronized video data, most bandwidth needed
Video Optimized (high color)	Video Optimized	16 bit	4.3 - 5.0 MB/s	uncompressed, synchronized video data, most bandwidth needed
LAN (high color)	0 (no compression)	16 bit	1.0 - 1.3 MB/s	uncompressed video data
LAN	0 (no compression)	8 bit	500 - 700 kb/s	uncompressed video data
DSL	2	8 bit	110 - 140 kb/s	slower video because of compression
UMTS	4	8 bit	80 - 100 kb/s	slower video because of compression
ISDN 128k	6	4 bit	20 - 30 kb/s	16 colors
ISDN/Modem V.90	7	2 bit	13 - 17 kb/s	gray scale
GPRS/HSCSD	8	2 bit	5 - 7 kb/s	gray scale
GSM Modem	9 (best compression)	1 bit	1 - 3 kb/s	black&white video